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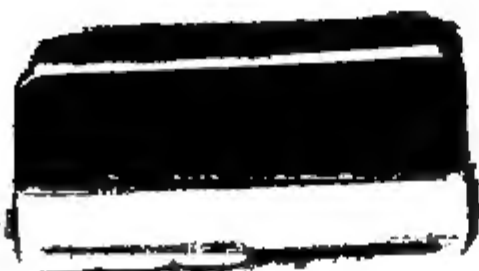
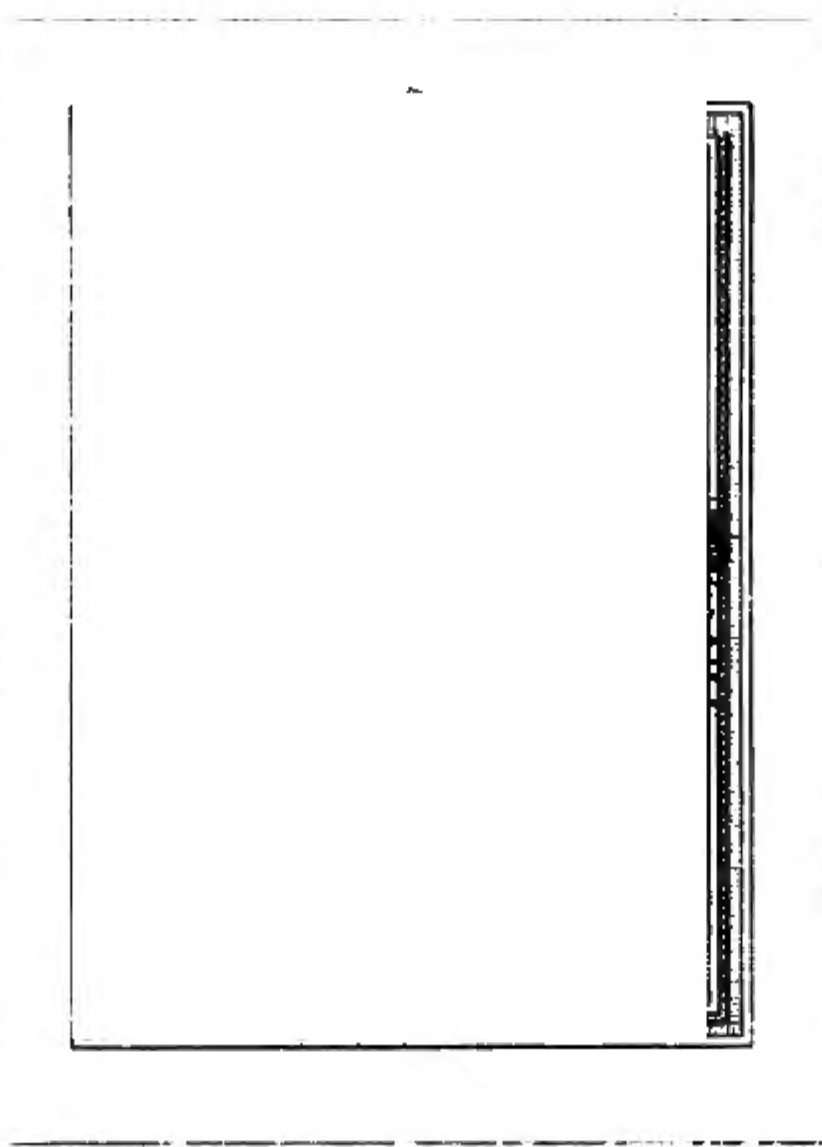
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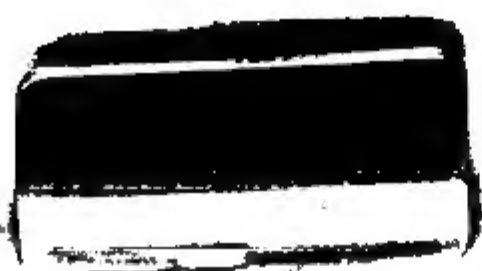
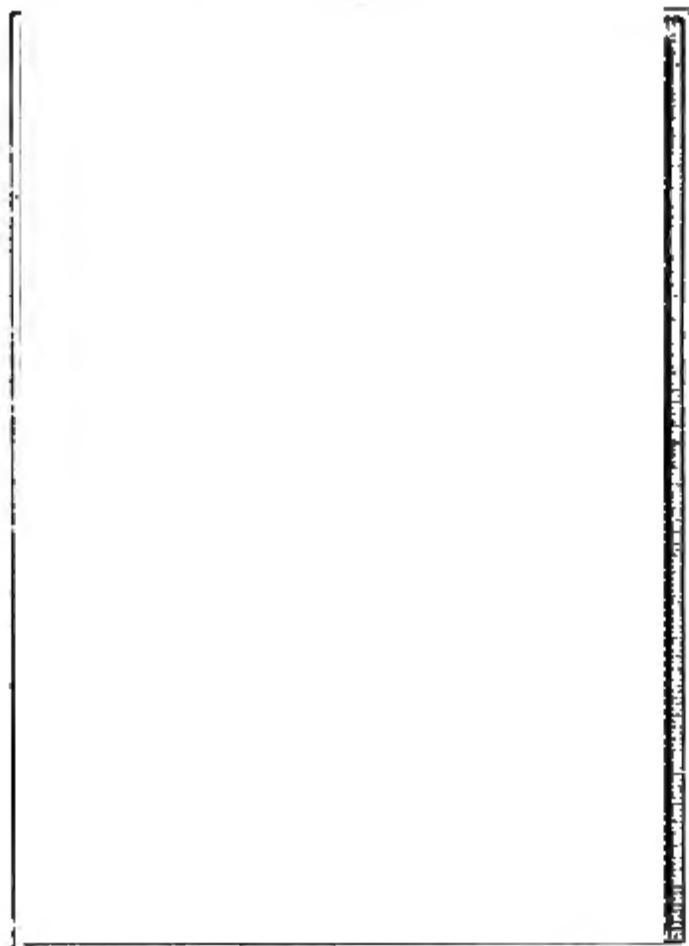
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DOCUMENTS

OF THE

Senate of the State of New York.

NINETY-SIXTH SESSION—1873.

VOLUME 3.—Nos. 38 to 81 inclusive.



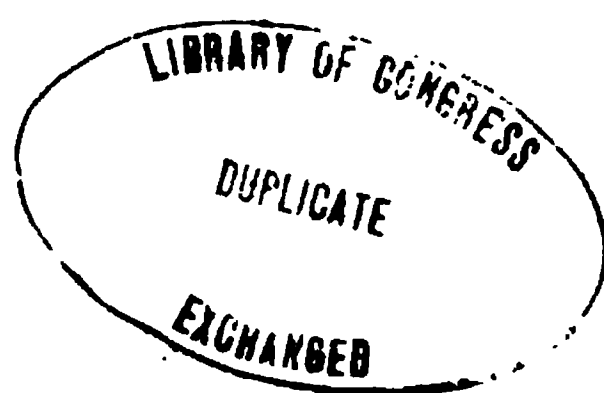
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1873.

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STATE OF NEW YORK.

No. 38.

IN SENATE,

February 17, 1873.

REPORT

OF THE TRUSTEES OF THE WADSWORTH LIBRARY.

To the Legislature of the State of New York:

The Trustees of the Wadsworth Library, in pursuance of the statute, make the following report to the Legislature for the year 1872:

The income account of the trustees on the 31st day of December, 1872, shows an amount received from rents and interest or securities of	\$852 31
The expenses of 1872 have been	\$790 80
Leaving on Dec. 31, 1872, a balance on hand of ..	61 51
	<u>\$852 31</u>

All of which, together with the list of the property of the library, is fully set forth in Schedule A, hereto attached.

A statement in regard to the number of the books now in said library will be found in Schedule B, hereto annexed.

SCHEDULE A.

1872.	INCOME FUND.
Dec. 31. By cash received for interest on securities and for rents	\$852 31

CONTRA.

To librarian's salary	\$200 00
care of building, etc.	50 25
cost of new books	184 71
printing	7 00
binding old books	67 00
coal	59 53
gas	41 60
express	4 15
sundries	46 56
book cases	130 00
balance to credit new account	61 51
	<hr/>
	\$852 31
	<hr/>

PROPERTY OF WADSWORTH LIBRARY.

Library lot and building	\$12,500 00
Temple Hill grove (not to be sold)	1,000 00
Lot on Centre street, two acres	1,500 00
Lot on South street, two acres	1,500 00
Yellow House farm, 115 acres, at \$75 per acre	8,625 00
Contract, J. Clapper, balance due	9,538 98
" C. C. Jones	83 85
" Trustees Methodist Church	1,000 00
Bond of village of Geneseo	500 00
On deposit, Genesee Valley National Bank	725 81
6,560 books	6,560 00
	<hr/>
	\$43,533 64
	<hr/>

SCHEDULE B.

Number of books in library first January, 1872	6,399
Received by purchase during year 1872	161
	<hr/>
Whole number	6,560
	<hr/>

All of which is submitted.

GENESEO, 31st *January*, 1873.

CHARLES F. WADSWORTH, *President*.

JAS. S. ORTON, *Secretary*.

STATE OF NEW YORK.

No. 39.

IN SENATE,

February 18, 1873.

LIST OF GENERAL ORDERS.

G. O.

99. An act to change the name of the Board of Foreign Missions of the Reformed Protestant Dutch Church to "Board of Foreign Missions of the Reformed Church in America."
100. An act ratifying the consolidation of the Rochester, Nunda and Pennsylvania Railroad Company with the Northern Railroad and Navigation Company.
101. (Assembly, 48.) An act relative to paving streets and constructing sewers in the village of West Troy.
102. An act making provision for the support of the Cohoes Hospital.
103. An act to incorporate the Faxon Hospital in the city of Utica.
104. An act to alter, open and improve the canal in and along the west branch of Newtown creek, within the city of Brooklyn, laid down on the commissioners' map of the town of Bushwick, between a line one hundred and fifty feet southerly from Dickenson street and Randolph street, to construct a bridge over the same, and to discontinue parts of Vandervoort and Porter avenues and Randolph street, adjacent thereto.
105. An act to release the title and interest of the people of the State of New York in and to certain real estate in the village of Waverly, county of Tioga, State of New York, to David Decker, the surviving husband of Sarah Decker, deceased.

G. O.

106. An act to change the name of Simon Habel, M. D., to A. Habel.
107. An act to legalize and confirm the acts of the commissioners of the several towns through which the Rochester, Nunda and Pennsylvania railroad is located, appointed in proceedings to bond said towns under the act permitting municipal corporations to aid in the construction of railroads, passed May 18, 1869, for the purpose of aiding the several railroad companies merged in said Rochester, Nunda and Pennsylvania Railroad Company as consolidated, and authorizing the issuing of bonds by the commissioners in such proceedings in cases where they have not been issued.
108. An act to amend chapter 798 of the Laws of 1868, entitled "An act to amend chapter 365 of the Laws of 1862, entitled 'An act to authorize the discharge of mortgages of record in certain cases,' passed May 9, 1868."
109. An act to amend chapter 13 of the Laws of 1859, entitled "An act to equalize the State tax among the several counties in this State."
110. An act to release the interest of the State in certain lands situated in the city of Brooklyn, county of Kings, to William Henry Dinwoodie.
111. An act to authorize aliens to acquire, hold and dispose of real and personal property, in like manner with citizens.
112. An act to amend an act entitled "An act to incorporate the New York Commercial Association," passed April 19th, 1862, amended by a subsequent act, passed February 13th, 1868, changing the name of said corporation to "New York Produce Exchange."
113. (Assembly, 31.) An act to authorize the construction of a canal or drain from Shinnecock bay in Quanteck bay, in the county of Suffolk.
114. (Assembly, 34.) An act to enable the Rhinebeck and Connecticut Railroad Company to extend their road.
115. (Assembly, 92.) An act relating to the Washington Street and State Asylum Railroad Company.
116. (Assembly, 62.) An act to regulate the pay of firemen in the city of New York.

G.O.

117. (Assembly, 88.) An act to authorize the common council of the city of Buffalo to borrow money and purchase additional fire engines and fire apparatus.
118. (Assembly, 86.) An act to provide for a supply of water in the city of Yonkers.
119. An act to authorize the leasing of certain real estate belonging to the corporation of the city of New York.
120. An act to drain and improve certain lands of Thomas Hunt lying in the eighth ward of the city of Brooklyn, between the Third avenue and New York bay and Forty-fourth and Forty-ninth streets, and to alter the commissioners' map of said city in conformity thereto.
121. An act to amend chapter 717 of the Laws of 1870, entitled "An act to authorize the sale of real estate in which any widow is or shall be entitled to dower in satisfaction and discharge thereof," passed May 6, 1870.
122. (Assembly, 67.) An act to authorize the Lockport and Cambria Plankroad Company to collect certain additional tolls.
123. (Assembly, 73.) An act to amend an act entitled "An act for the completion of Westchester avenue, in the towns of White Plains, Harrison and Rye, in the county of Westchester," passed May 13, 1872.
124. An act to amend an act entitled "An act to provide for the endowment of the Unadilla Academy," passed May 3d, 1872.
125. An act to incorporate the United States Improvement Company of New York.
126. An act to amend an act entitled "An act to suppress intemperance and to regulate the sale of intoxicating liquors," passed April 16th, 1857.
127. (Assembly, 74.) An act relative to the improvement of the town of Kingsbridge, in the county of Westchester.
128. (Assembly, 75.) An act to provide for the laying out, improvement and preservation of burial grounds in the several towns of the State.
129. (Assembly, 44.) An act to incorporate the Guilderland Mutual Insurance Association, and for other purposes.

G. O.

130. (Assembly, 53.) An act to amend the charter of the village of Akron, in the county of Erie, and to extend the limits of said village.
131. An act to amend an act entitled "An act to release the interest of the people of the State of New York in the real estate of which William Long, late of Minerva, Essex county, died seized, to Isaac Hagan," passed May 20, 1872.
132. An act to enable the commissioners appointed to revise the statutes and incorporate in their report the political and penal codes, or so much thereof as they shall deem advisable.
133. (Assembly, 24.) An act to release the interest of the people of the State of New York in certain surplus money derived from a mortgage foreclosure and sale of certain real estate to Michael Doyle.
134. (Assembly, 14.) An act to authorize writs of mandamus and of prohibition to issue to the special term of the Supreme Court, or to any justice thereof holding such term or sitting at chambers.
135. (Assembly,) An act releasing the interests of the State of New York in certain lands under the waters of the Hudson river, near the lower docks, in the village of Peekskill, Westchester county.
136. An act to amend an act entitled "An act to revise the charter of the city of Auburn," passed April 22d, 1869.
137. An act to provide for the publication of election notices in the counties of this State.
138. An act in relation to the powers and duties of county treasurers, and to authorize certain actions and proceedings against them.
139. An act to amend an act entitled "An act to amend an act to establish a department of police in the city of Buffalo, and to provide for the government thereof," passed April 26, 1871, passed April 23, 1872.
140. An act relating to the town officers and local government of Newtown, in Queens county.
141. An act authorizing the election of a police justice in the town of Newtown, Queens county, and prescribing his duties and compensation.

STATE OF NEW YORK.

No. 40.

IN SENATE,

February 17, 1873.

REPORT

OF THE COMMISSIONERS APPOINTED TO INVESTIGATE CHARGES AGAINST LUNATIC ASYLUMS IN THIS STATE; ALSO AN ACT ACCOMPANYING THE SAME.

STATE OF NEW YORK:

EXECUTIVE CHAMBER,
ALBANY, *February 17, 1873.* }

To the Senate:

I herewith transmit the report of the commission appointed by my predecessor for the purpose of visiting, inspecting and investigating the charges made against lunatic asylums in this State; also an act accompanying the same.

JOHN A. DIX.

R E P O R T .

To His Excellency JOHN A. DIX, *Governor* :

SIR.—On August 20th, 1872, his excellency, Governor Hoffman, addressed to the undersigned the following communication :

“STATE OF NEW YORK:

“EXECUTIVE CHAMBER, }
“ALBANY, *August 20, 1872.* }

“GENTLEMEN.—Charges of abuse in the Bloomingdale Lunatic Asylum have lately been made in the public prints, by parties who give their names, and avow their ability to prove their allegations. This asylum is, in common with others of less note, a purely private establishment, subject to no supervision of the public authorities. Our laws permit the confinement of alleged lunatics as well in these private institutions as in the public asylums of the State, upon the order of magistrates of the grade of justice of the peace, issued upon the certificate of any two physicians. This condition of the law giving opportunity for abuses, I have, more than once, asked the Legislature to correct. At the last session, two bills passed the Assembly, furnishing better safeguards in connection with the commitment and care of lunatics; one of these provided (very properly), that no person or institution should undertake the care of lunatics, except when licensed by the State Commissioners of Charities, and thus subject to their inspection; this bill failed to pass the Senate. It was publicly asserted (and not denied), that the failure of the bill in the Senate was due, chiefly to the personal efforts, at Albany, of the chief physician of the Bloomingdale Asylum. An aversion, thus manifested to proper supervision of the public authorities, makes it the more important, as well to the repute of the institution itself, as to the public interests, that the charges now made should be investigated.

“I therefore appoint you as a commission for the purpose of investigating these charges, and others that may be laid before you against this or any other asylum for lunatics, whether under public or private management, and of visiting and inspecting the several asylums for the insane, with or without charges being made against them, with a view of discovering abuses wherever they exist, requesting that you report the result of your inquiries to me as soon as possible.

"The duty which I impose upon you is, I know, onerous. At the present time there is no provision of law enabling me to compensate you for your labors or your expenses. I feel warranted, however, in assuring you that the Legislature, at its next session, will not fail to provide a just and liberal compensation.

"Knowing that the people will have the same confidence that I have in your fitness for this very important trust, I make an earnest request that you will, out of regard for the general good, accept the duty.

"Very truly yours,

"JOHN T. HOFFMAN.

"To Hon. FRANCIS C. BARLOW, Attorney-General, M. B. ANDERSON, LL. D., President Rochester University, THOMAS HUN, M. D., Albany, N. Y."

In accordance with this request we have visited and examined the Bloomingdale Lunatic Asylum, and several other of the asylums of the State, to wit, the establishments known as Sandford Hall, at Flushing, Brigham Hall, at Canandaigua, the establishment of Dr. Kittredge, at Fishkill, and the State Lunatic Asylum at Utica, and we have heard the statements of those who, after public notice of our meetings, chose to come before us, including those by whom the charges against the Bloomingdale Asylum, mentioned in the letter of Governor Hoffman, were made.

The inquiries made by us have been limited by what we conceived to be the object and motives of our appointment.

Complaints and charges in the public prints had created a fear in the public mind that the several insane asylums of the State were made instruments of oppression, by the incarceration of persons who were not of unsound mind, and stories of abuses in the treatment of patients had excited apprehension in those whose friends were necessarily committed to the care of these institutions.

We conceive that the information of the public on these two points was the object of our appointment.

It would serve no good purpose for us to publish the mass of evidence taken by us, or to go into all the details of our investigations, or to set forth a variety of minor points in regard to which we might feel inclined to criticise the management of these institutions. We could only say in conclusion, what we now say, that, in our opinion, there should be some system of public supervision.

Having early come to the conclusion that the *possibility* of abuses in these institutions, without reference to their actual existence

at the present time, is such that some system of supervision and inspection by the public authorities is desirable, we have not considered it necessary to continue our investigation further than we have above stated; and we therefore submit our general conclusions upon the points indicated, and we unite in recommending the passage of some law providing for a system of visitation and inspection.

First. We are of opinion that there is no just foundation for the apprehension that persons not insane are improperly confined in these institutions.

There will always be some cases in which there may be doubt as to the degree of the unsoundness of mind, and as to the danger to himself and others which would result from the going at large of the patient.

Not being experts on this subject, we obviously could not attempt to pass upon these doubtful cases; but as long as the persons in charge of these institutions are believed to be upright and skillful, the decision of these questions is more properly left to them with their large experience and opportunities of examination.

We would not be understood as intimating that we have doubts as to the propriety of the confinement of any of the persons who came under our observations, for we have not.

Having recommended the passage of a law for a supervision of asylums by persons skilled in the treatment of the insane, we do not feel it to be our duty to do more than express our opinion that these institutions, so far as we have visited them, are not knowingly and designedly made instruments for the incarceration of sane persons.

We do not hesitate to say that, in our opinion, the public anxiety on that point is wholly unfounded.

Second. As to the treatment and discipline of the insane, and the internal management and regulation of asylums, we do not consider it within our province to make any extended criticism of the methods of treatment and discipline pursued, or to point out any improvements which we might think could be made in the details of management.

A proper system of licensing and supervision will result in the laying down such rules and regulations as science and experience shall approve.

We only think it necessary to inform the public whether we find any gross abuses in the treatment of these unfortunate persons.

The great difficulty to be met with in these institutions is to protect the patients from the harsh and impatient treatment of the attendants. It is very difficult to find persons of kindness, patience and consideration, who are willing to spend their time in the care of the insane, and the difficulty of ascertaining, among the numerous complaints of persons of disordered minds, whether any particular ones are well founded, must be obvious.

Instances of abuse occur in all asylums, and attendants are not unfrequently discharged for that reason.

The utmost vigilance cannot entirely prevent it, and all that can be required of the managers of such institutions is an active and vigilant scrutiny into all cases of complaint.

We have no doubt that any such conduct on the part of attendants would be promptly punished in the asylums above named whenever brought to the knowledge of the officers, but it is obvious that such officers do not properly discharge their duty unless they are ever wakeful and vigorous in detecting such abuses, and in maintaining a most thorough supervision over all subordinates.

In regard to the charges made against Bloomingdale Asylum in the public prints, we think that in order to do justice, both to the institution and the public, we may fairly say this: That the gross cases of mismanagement and misconduct charged against it have not been substantiated, and that great injustice has been done to the institution in representing it as the scene of outrages and habitual maltreatment of patients.

At the same time we are compelled to say that some instances of the improper treatment of patients by attendants have been fairly proven before us, and that we do not think that the utmost vigilance in detecting and guarding against this kind of abuse has prevailed in this asylum during the past summer.

Nothing but the sternest discipline, and the most careful watching over attendants, and the most searching and prompt investigations into, and suggestions or suspicions of harsh treatment by them, should be tolerated in an institution of this kind, and we think there has been some laxity in this respect.

It is proper to say that one of the attendants, charged with improper treatment of the patients, had been discharged before our visit to the asylum, and that any relaxation of discipline during the past summer may have been the result of the absence of the superintend-

ent for a considerable period by reason of the illness of himself and his family, and of the illness and death of one of the assistant physicians. We are bound to state the facts as we found them.

We have also visited the insane asylums at Ward's Island and Blackwell's Island, but as controversies were going on between the Commissioners of Charities and Correction and some of their physicians in regard to the management of these asylums, and the subject of the conduct of some of the attendants was then before the courts, it became clear to us that any investigation by those who, like ourselves, had no power of examining witnesses under oath, would be of little value, and we, therefore, did not press the examination.

In regard to the legislation needed to place insane asylums under supervision, we differ among ourselves.

Dr. Anderson is of the opinion that authority should be given to State Board of Public Charities to appoint a superintendent of lunatic asylums, whose duties and powers should be defined by law, and who shall be associated in the discharge and exercise of those duties and powers with the members of that board.

General Barlow and Dr. Hun believe that such commissioner should be appointed by the Governor and Senate, and that he should be an officer separate and distinct from the Board of State Charities, and they submit a bill herewith creating such officer and defining his powers.

It is, perhaps, not of much consequence who has the appointment of such an officer, but it is the opinion of General Barlow and Dr. Hun that when appointed he should have the powers indicated in the accompanying bill, and that the various asylums should be put under the strict supervision provided for therein.

While differing as to the method of supervision, we all agree that in some way the public authorities should have control over this large class of helpless citizens.

We do this, not because we distrust the management of the various asylums and institutions which we have visited, for we believe that, subject to the criticisms hereinbefore made, they are conducted and managed by skillful and humane men, but because we believe that a proper system of supervision would relieve the public anxiety in relation to these institutions, and at the same time be a protection to the asylums themselves from unjust suspicions and aspersions.

We have found the managers and officers of the several asylums and institutions heartily in favor of some system of public supervision.

Very respectfully,

FRANCIS C. BARLOW.

M. B. ANDERSON.

THOMAS HUN.

ALBANY, *February 13th*, 1873.

AN ACT to create a "State Commissioner in Lunacy," and to provide for the visitation and inspection of lunatic asylums, and to regulate proceedings on habeas corpus so far as they affect persons detained in such asylums.

The People of the State of New York, represented in Senate and Assembly, do enact as follows:

SECTION 1. There shall be appointed by the Governor, by and with the advice and consent of the Senate, an officer to be called the State commissioner in lunacy, who shall be a person familiar with mental diseases. He shall hold office for five years, shall have his office in the city of Albany, and shall have power to appoint such clerks and assistants as shall from time to time be authorized by law. Said commissioner and said clerks shall receive such compensation as may be fixed by law.

§ 2. The said commissioner shall have the power to visit and inspect, at all times, any asylum, poor-house, establishment, institution or house in this State, either public or private, where insane persons, or persons of unsound mind, are received, treated or confined, and to inquire into the propriety and legality of such confinement, and into the treatment and management of the inmates of such places, and the conduct of the officers, superintendents, physicians, attendants and employes thereof, and the condition of the buildings, grounds and other property connected therewith, and into all matters pertaining to the efficiency and good management of such asylums, institutions, establishments or houses, and the propriety of the detention of and the treatment of their inmates, and for that purpose said commissioner shall at all times have free access to the inmates, grounds, buildings and all books and papers of such places.

§ 3. Said commissioner shall have the power to administer oaths, and to examine any person under oath in relation to and upon all matters and things in regard to which he may be authorized to inquire, including investigations and proceedings under the tenth section of this act, and willful false swearing under such oath is hereby declared to be perjury. Said commissioner may compel the attendance of witnesses before himself; at a place to be designated in such subpoena, for the purposes

aforesaid, by subpoena or subpoena *duces tecum*, signed by himself. A willful refusal or neglect to obey such subpoena shall subject the person so refusing, or neglecting, to a penalty of two hundred and fifty dollars, to be sued for and recovered by said commissioner. And upon proof by affidavit, before any judge of a court of record, of the service of any such subpoena, and the neglect or refusal of any person to obey the same, said judge shall issue an order, signed by himself, to the sheriff of any county in which such person shall reside or be found, commanding said sheriff to bring said person before said commissioner, at a place to be named, to testify as aforesaid, and said sheriff shall obey said order and produce said person, and for a refusal to testify when so produced, upon satisfactory proof of such refusal, said judge shall have as full power to punish the person so refusing to testify, for contempt, as any such judge or the Supreme Court now have, or shall have, to punish for contempt in any case or matter whatsoever. Said commissioner shall pay out of the moneys appropriated to the expenses of his office, to any sheriff or other person serving subpoenas, or other papers or process, or executing any orders of a court or judge, the fees thereon authorized by law for similar services in courts of record; and he may in his discretion pay to any witness so subpoenaed the fees and mileage now allowed by law to witnesses in such courts.

§ 4. Within two days from the time of the reception of any patient into any asylum or institution, within this State, public or private, for the reception, care, custody or treatment of insane persons or persons of unsound mind, it shall be the duty of the superintendent or other chief officer or manager thereof, or person conducting or having the charge and management thereof for the time being, to transmit by mail to the said commissioner at his said office, copies of the order, medical certificates and commitment hereinafter mentioned and copies of all other papers upon which said person was received, together with the full name, age and residence of such person so received, and the date of his or her reception. And within seven days from the date of such reception, it shall be the duty of the chief medical officer of said asylum or institution, or the medical officer in charge thereof for the time being, to transmit to said commissioner, at his said office, his own account of the case as derived from personal observation and examination, stating the nature and symptoms of the insanity or unsoundness of mind, and such other facts as the said commissioner may by regulation require.

§ 5. No person, whether being represented to be an insane person, or a person of unsound mind, or only a boarder or lodger, shall be received into or detained as a patient or for medical treatment, in any asylum or institution for the care, custody or treatment of insane persons or persons of unsound mind, whether public or private, without an order under the hand of some person according to the form and stating the particulars required in Schedule A, annexed to this act, and without a commitment signed by a judge of a court of record or a justice of the peace, which commitment shall state that said judge or justice of the peace has personally examined the two

physicians who signed the certificates hereinafter mentioned, and that he is satisfied from such examinations the person committed is an insane person or person of unsound mind, and a proper person to be confined, and without, in addition to said order and said commitment, the medical certificates according to the form and stating the particulars required in Schedule B, annexed to this act, of two physicians who have been duly authorized to practice by some medical college or institution, who shall not be partners with each other or in any way connected with or interested in said asylum or institution, each of whom shall, separately from the other, have personally examined the person to whom it relates, not more than seven days previously to the reception of such person into such asylum or institution, and shall have signed and dated said certificate on the day on which such person shall have been examined. Said order and commitment and medical certificates shall be delivered to the superintendent, manager or other person in charge of said asylum or institution at the time of the reception of said patient, and shall be kept on file therein, and any person who shall receive or detain any such person as aforesaid without said order, commitment and medical certificates as aforesaid; and any physician who shall, knowingly, sign any such medical certificate which shall untruly state any of the particulars therein required to be stated; and any person who shall, knowingly, sign any such order (Schedule A), which untruly states any of the particulars required therein to be stated, shall be guilty of a misdemeanor, provided that this section shall not apply to any person who may be committed as an insane convict, or an insane pauper or indigent person under the laws of this State, but such persons may be committed and received as provided by law, anything in this section to the contrary notwithstanding.

§ 6. Any person who shall hereafter be received as a patient into any asylum or institution, public or private, for the care and safe-keeping of lunatics, or persons of unsound mind, whether represented to be an insane person or a person of unsound mind, or only a boarder or lodger, may, after the expiration of seven days from such reception, transmit to the said commissioner in lunacy one communication in writing, and it shall be the duty of the officers of said asylum or institution, or the person in charge thereof, forthwith to transmit said communication, unopened, to said commissioner by mail. And upon the reception of any such person as aforesaid, it shall be the duty of the officer or person in charge so receiving him or her, to deliver to said person so received a card, whereon shall be printed in large letters the following words: "At the expiration of seven days from the date of reception, every patient shall have the absolute right to transmit an unopened communication to the commissioner in lunacy at Albany, New York, for which purpose writing materials will be furnished on application." And at the same time distinctly to state to said patient the contents of said card; which delivery and statement shall be in the presence of a competent witness, and of which delivery and statement a memorandum shall be forthwith entered upon a book to be kept at said

asylum or institution for that purpose, which memorandum shall be at the time attested by the person making said delivery and statement and by said witness. And it shall be the duty of the chief officer, or other person in charge of such asylum or institution, to furnish to such patient at the expiration of said seven days, or as soon thereafter as said patient shall request, writing materials and postage stamps for the purpose of enabling said communication to be written and transmitted. For a willful refusal or neglect to comply with the duties imposed by this section, the person so refusing or neglecting shall be deemed guilty of a misdemeanor, and shall furthermore be subject to a penalty of five hundred dollars for each such refusal or neglect, to be sued for and recovered by said commissioner, or by any informer; which penalty shall be paid into the treasury of the State, and shall be applied toward the expenses of executing this act. And for a willful failure or refusal to comply with the provisions of this section, the said commissioner in lunacy may in his discretion revoke the license of any licensed asylum or institution whose officers or managers may so offend.

§ 7. It shall be the duty of said commissioner in lunacy, immediately after his appointment, to visit and inspect every asylum or institution in this State, both public and private, wherein lunatics or persons of unsound mind are received and detained, and to personally examine every patient therein, and to investigate all complaints of said patients as to the injustice of their detention, or their treatment by attendants and others, and to make all the examinations which said commissioner is required or authorized by law to make, and thereafter to make such examinations and investigations from time to time, as often as practicable; and, upon the receipt of the communication mentioned in the sixth section of this act, it shall be the duty of the said commissioner to so answer the same as the circumstances may require; and if such communication shall cause said commissioner to believe that the writer thereof is unjustly detained, it shall be his duty to visit such patient and investigate his or her case. If, upon an investigation into the condition of any patient, either by reason of such communication or otherwise, the said commissioner shall be of opinion that he or she is improperly detained, and the chief medical officer of said asylum or institution, or person in charge thereof shall, upon a consideration of the case, in conjunction with said commissioner, coincide with him in that opinion, then, in that case, said patient shall be discharged. In case said commissioner and said chief medical officer shall differ in regard to the sanity of said patient, or the propriety of his or her detention, it shall be the duty of said commissioner to enter the facts and his opinion thereon in a book, to be kept for that purpose at said asylum or institution, and forthwith to report the case, with his opinion thereon, to the justice of the Supreme Court residing nearest to said asylum or institution, except that when said asylum or institution is situated in the counties of New York and Kings said report may be made to any justice of the Supreme Court residing in the county in which said asylum or institution is situated, and it shall be the duty of

said justice to issue a writ of *habeas corpus* to bring before him the body of such patient, and he shall proceed to investigate the propriety of said detention, and shall remand or discharge the patient according to the justice of the case. And the said justice may, in his discretion, submit the question of the sanity of such patient to a jury, which jury shall be nominated, drawn, summoned and sworn, and shall proceed as provided in sections three, four and five of act chapter 225 of the Laws of 1840. Should said jury fail to agree as to the sanity or insanity of said patient, said justice may cause a second or third jury to be drawn and summoned for the consideration of the case, or he may himself determine it, in his discretion. The minutes of the proceedings had upon such trial, including the testimony taken, shall be certified by said justice to be correct, and shall be forthwith filed in the office of the clerk of the county in which such hearing shall take place; and said clerk shall, upon the payment of his legal fees, furnish to said commissioner a certified copy thereof, which shall be filed by said commissioner in his office. Nothing in this act contained shall impair the jurisdiction of any court or officer to inquire by *habeas corpus* into the detention of any person, provided that all writs of *habeas corpus* to inquire into the detention of any person confined in any asylum or institution, public or private, for the custody and care of insane persons, or persons of unsound mind, shall be issued by and made returnable before a court held, or officer who resides, in the county in which such asylum or institution is located, or in an adjoining county.

§ 8. No person, association or corporation shall establish or keep an asylum, institution, house or retreat for the care, custody or treatment of the insane or persons of unsound mind, without first obtaining a license therefor from said commissioner, provided that all persons, associations or corporations who, at the time of the passage of this act, are engaged in keeping such asylums, institutions, houses or retreats, or in receiving or keeping insane persons or persons of unsound mind for compensation or hire, shall obtain such license within three months after the appointment of such commissioner; and provided, further, that this section shall not apply to any State asylum or institution, or to any asylum or institution established or conducted by any county or by any city or municipal corporation.

§ 9. Every application for such license shall be accompanied by a plan of the premises proposed to be occupied, to be drawn on a scale of not less than one-eighth of an inch to a foot, with a description of the situation thereof, and the length, breadth and height of, and a reference by a figure or letter to every room and apartment therein, and a statement of the quantity of land not covered by any building annexed to such house and appropriated to the exclusive use, exercise and recreation of the patients proposed to be received therein, and also a statement of the number of patients proposed to be received into such house, and whether the license so applied for is for the reception of male or female patients, or for both, and if for the reception of both, of the number of each sex proposed to be received into such house, and of the means by which the one sex

may be kept distinct and apart from the other. And it shall not be lawful for said commissioner to grant any such license without having first personally visited the premises proposed to be licensed, and being satisfied by such examination that they conform to the description of the application, and are otherwise fit and suitable for the purposes for which they are designed to be used.

§ 10. Whenever said commissioner in lunacy shall become satisfied that any superintendent, chief medical officer, or person in charge of any State asylum or institution, or any county or municipal asylum or institution for the care, custody and treatment of the insane, or where the insane are received and treated, has willfully violated the laws of the State relating to such asylum or institution, or is incompetent or unfit for the position which he holds, or has been guilty of any neglect or misconduct in relation to the duties of his office or position, it shall be the duty of said commissioner to prefer charges, in writing, against such superintendent, chief medical officer or person in charge, to the board or body having the appointment of said superintendent, chief medical officer or person in charge, and it shall be the duty of said board or body to publicly proceed to investigate such charges, and to dismiss or retain such person so accused, as the justice of the case may require. And, on such investigation, said commissioner, under the powers conferred upon him by the third section of this act, shall compel the attendance and testimony, on oath, of such witnesses as the person against whom such charges shall be preferred shall, in writing, request, and he shall employ all the powers conferred upon him by said third section to procure all the witnesses and testimony which said person so accused shall, in writing, request.

§ 11. The term "public asylum or institution," as herein used, shall be construed to mean and include the State asylums and all asylums, poor-houses or institutions established or maintained by any county, city or municipal corporation, for the care and treatment of insane persons or persons of unsound mind, or where insane persons or persons of unsound mind are received, detained or treated. And the term "private asylum or institution" shall be construed to mean and include all asylums or institutions incorporated or otherwise (other than public asylums or institutions as above defined), in which insane persons or persons of unsound mind are received and detained, and all individuals who for compensation or hire assume the care and custody of such persons, and no such private asylums and institutions shall receive or detain any such persons without being licensed as aforesaid. But the provisions of this act shall not apply to cases where insane persons or persons of unsound mind are detained and treated at the houses of their families or relatives.

§ 12. The commissioner in lunacy may revoke the license of any asylum or institution which by the provisions of this act is required to be licensed, whenever he shall find that a state of things exists which would have justified him in refusing to grant such license. Should said commissioner refuse at any time to grant a license to any asylum or institution which by the provisions of this act is

required to be licensed, an appeal from said refusal may be taken by said asylum or institution to the State Board of Charities, and said board shall forthwith proceed to consider the matter upon a hearing of the commissioner and the officers or managers of said asylum or institution; and if said board shall, upon said hearing, determine that said asylum or institution can properly be licensed, the commissioner shall forthwith license the same. And in all cases in which said commissioner shall revoke the license of any asylum or institution, the persons affected by such revocation may take a like appeal to said board, which appeal shall suspend the revocation until the decision of said board. Said board shall forthwith proceed to consider such appeal upon a hearing of said commissioner and the officers or managers of said asylum or institution, and if they shall, by a resolution to be entered in their minutes, determine that said license has been revoked without sufficient cause, said revocation shall be of no force and effect, but said asylum or institution may proceed as if their license were still in force.

§ 13. After the expiration of three months from the appointment of said commissioner in lunacy, any person or persons who shall conduct or maintain any private asylum or institution, and the officers of any corporation who shall conduct or maintain such private asylum or institution without having obtained a license to do so, as herein provided, or after the revocation of such license, shall be guilty of a misdemeanor, and it shall be the duty of the district attorney of the proper county, upon the complaint of said commissioner, to procure the indictment and conviction of all persons so offending. Any officer, manager or person in charge of any such public or private asylum or institution who shall refuse to give to the commissioner in lunacy full access to such asylum or institution, or who shall willfully obstruct said commissioner in the performance of his duty, shall be guilty of a misdemeanor. Any person who shall neglect or refuse to perform the duties imposed by the fourth section of this act shall be subject to a penalty of two hundred and fifty dollars for each offense, which penalty shall be sued for and recovered by the commissioner in lunacy, and shall be paid into the treasury of this State and be applied toward the expenses of this act. It shall be the duty of the district attorneys of the proper counties, at the request of the commissioner in lunacy, to prosecute for such penalties under this act as the said commissioner has power to sue for; and, upon like request, it shall be the duty of said district attorneys to appear for the patient in any *habeas corpus* proceeding under section seven of this act.

§ 14. The commissioner in lunacy shall annually, on the first day of January, make a report to the Governor, in which he shall state the condition of each asylum or institution, both public and private, of this State; the number of visits he has made to each; the number of communications which have been made to him by patients under section six of this act, and his action on each one thereof; the number of cases of difference between himself and the chief medical officer or person in charge under section seven of this act, and the result of the applications made thereupon to justices of the supreme court;

the number of asylums or institutions licensed during the year, and the number of licenses revoked, with the circumstances and cause of such revocation; all cases in which he has been satisfied that patients have been maltreated by attendants, and what action has been taken thereupon by the officers or managers of asylums; all cases of charges preferred under section ten of this act, and the result thereof; the number of cases in which penalties have been recovered or indictments found for violation of the provisions of this act; the number of patients who, during the year, have been received into and discharged from each asylum or institution, and whether, in public asylums or institutions, preference has been given to public over private patients, and the number of each kind received and discharged, and generally all the matters and things relating to the management of said institutions.

§ 15. The reports required by section four of this act shall be kept on file in the office of said commissioner in strict secrecy, and no person whatsoever shall have access thereto except such commissioner and such of his clerks and assistants as shall be appointed in pursuance of law. Said reports shall not be produced or their contents disclosed to any person or under any pretense whatsoever, except in obedience to subpoena or other competent legal authority, and except when, in the opinion of said commissioner, it may be necessary so to produce or disclose them in any proceeding under section ten or section twelve of this act. Any person violating the provisions of this section shall be deemed guilty of a misdemeanor.

§ 16. This act shall take effect immediately.

SCHEDULE A.

ORDER FOR THE RECEPTION OF A PATIENT.

The undersigned hereby request you receive A. B., an insane person (or a person of unsound mind), as a patient into your house (or hospital, asylum or institution.)

Subjoined is a statement respecting the said A. B.

(Signed.)

Name.

Occupation (if any).

Place of abode.

Degree of relationship
(if any, or other circumstances of connection,
with the patient).

Name of patient, with Christian name at length.

Sex and age.

Married, single or widowed.

Condition of life and previous occupation (if any).
 Previous place of abode.
 Religious persuasion, so far as known.
 Duration of existing attack.
 Whether first attack.
 Age (if known) on first attack.
 Whether subject to epilepsy.
 Whether suicidal or dangerous to others.
 Previous place of confinement (if any).
 Whether found lunatic by inquisition, and date of commission.
 Special circumstances (if any) preventing the insertion of any of
 the above particulars.

(Signed.)

Name.

Place of abode.

Dated this day of , one thousand eight hundred and .

To the proprietor (or superintendent) of (describing the
house or hospital by name and situation).

SCHEDULE B.

FORM OF MEDICAL CERTIFICATE.

I , a physician, duly authorized by (here insert
 name of medical college or institution) to practice as such, hereby
 certify that I have this day, separately from any other medical prac-
 titioner, visited and personally examined A. B., the person named in
 the accompanying order, and that the said A. B. is an insane person
 (or person of unsound mind), and a proper person to be confined, and
 that I have formed this opinion from the following facts, viz.: (here
 state facts).

(Signed.)

Name.

Place of abode.

Dated this day of , one thousand eight hundred and .

STATE OF NEW YORK.

No. 41.

IN SENATE,

February 18, 1873.

MESSAGE

FROM THE GOVERNOR RELATIVE TO THE FURNISHING TWO STATUES OF EMINENT DECEASED CITIZENS OF THIS STATE, TO BE PLACED IN THE CAPITOL AT WASHINGTON.

STATE OF NEW YORK:

EXECUTIVE CHAMBER,
ALBANY, *February 17th*, 1873. }

To the Legislature:

Under the provisions of the act entitled "An act to provide for furnishing two statues of eminent deceased citizens of this State, to be placed in the Capitol at Washington, in compliance with the invitation of the President of the United States," passed May 6th, 1872, a contract has been made for furnishing a marble statue of George Clinton, one of the two statues to be placed by this State in the Capitol at Washington. The subject of the other statue was left to be designated and the statue provided for by the present Legislature.

Among the most distinguished men who have been citizens of this State were Alexander Hamilton and John Jay; but as a statue of the former and a bust of the latter are already in the Capitol, Robert R. Livingston will, no doubt, occur to many as fulfilling the conditions of the act of Congress, under which each State is invited to furnish two statues "of deceased persons who have been citizens thereof, and illustrious for their historic renown or from distin-

guished civic or military services." I do not desire by this suggestion to influence the decision of the Legislature in making a selection, which may better be left to their unbiased judgment.

But there is one subject in regard to which I wish to call their attention. I think the provision in the act of the Legislature requiring the statue of George Clinton to be of marble could not have been sufficiently considered. The act of Congress leaves it optional with the States to "furnish statues in marble or bronze." The former from its brittleness is always in danger of becoming mutilated either by accident or by the wantonness of mischievous persons. Some of the most valuable of the ancient marbles have suffered so much that it is doubtful whether the parts which have been restored conform to the originals, while statues in bronze have stood from fourteen to fifteen centuries in the open air, without sustaining any injury from lapse of time or from violence.

It is not too late to provide that both statues shall be of bronze, as the cast for that of George Clinton is not yet completed, and if the change should be authorized, the representations of the two distinguished citizens of New York may reasonably be expected to endure as long without injury as the edifice in which they are to be placed.

JOHN A. DIX.

STATE OF NEW YORK.

No. 42.

IN SENATE,

February 18, 1873.

LIST OF GENERAL ORDERS.

G. O.

142. An act relating to husband and wife dying intestate.
143. An act supplemental to and amendatory of chapter 842 of the Laws of 1868, an act entitled "An act to provide for the transmission of letters, packages and merchandise in the cities of New York and Brooklyn, and across the North and East rivers, by means of pneumatic tubes, to be constructed beneath the surface of the streets, squares, avenues and public places in said cities, and under the waters of said rivers," passed June first, 1868; and of chapter 512 of the Laws of 1869, entitled "An act supplementary to chapter 842 of the Laws of 1868, in relation to carrying letters, packages and merchandise, by means of pneumatic tubes, in New York and Brooklyn, and to provide for the transportation of passengers in said tubes."
144. An act to authorize the city of Buffalo to exchange lands with John C. Lord.
145. (Assembly, 84.) An act in relation to the city court of Yonkers.
146. An act relative to the rate of interest.
147. An act to release the interest of the people of the State of New York in and to certain lands situate in Long Island City, and county of Queens, to Caroline West, and to authorize her to hold and convey the same.
148. An act relating to husband and wife dying intestate.
149. An act to regulate interest and to prevent usury.
150. An act in relation to challenge of jurors.

a. o.

151. An act to amend an act conferring additional corporate powers upon the village of Ellenville, passed May five, 1868.
152. An act to amend sections 39 and 41 of chapter 164 of the Laws of 1863, entitled "An act to incorporate the village of Waverly, in the town of Barton, county of Tioga, and to repeal its present charter."
153. An act for the relief of stockholders of corporations whose certificates of stock have been lost or destroyed.
154. An act to amend an act entitled "An act more effectually to suppress gambling," passed July 10th, 1851.
155. An act to amend an act entitled "An act defining and regulating the powers, duties and compensation of the captain of the port and harbor masters of the port of New York," passed May 22d, 1862, and amended April 27th, 1865.
156. An act to amend an act passed April 21st, 1870, entitled "An act relative to the Union Home and School for the education and maintenance of the children of volunteers."

STATE OF NEW YORK.

No. 43.

IN SENATE,

February 25, 1873.

LIST OF GENERAL ORDERS.

G. O.

157. An act authorizing the Glen's Falls Railroad Company to extend its road to the village of Caldwell.
158. (Assembly, 93.) An act to amend the charter of the Harlem River and Port Chester Railroad Company.
159. An act to incorporate the Fort Edward and Sandy Hill Gaslight Company in the county of Washington.
160. (Assembly, 49.) An act to authorize the village of Saugerties, in the county of Ulster, to purchase a steam fire engine and necessary apparatus therefor, and a new engine-house and lot, and to sell and convey Rough and Ready engine-house and lot, and Hook and Ladder house and lot in said village.
161. (Assembly, 99.) An act to supply the village of Cortland with pure and wholesome water.
162. (Assembly, 95.) An act to amend an act entitled "An act to supply the village of Warren, in the county of Rockland, with pure and wholesome water," passed May 10, 1872.
163. (Assembly, 97.) An act to confirm and legalize the official acts of the president and board of trustees and the assessors of the village of Fort Plain, in the county of Montgomery, during the year 1872, in regard to the assessment and collection of taxes, and disbursements of moneys.
164. An act to amend chapter 767 of the Laws of 1872, relative to salaries of county judge and surrogate.

G. O.

165. An act in relation to the salary of the recorder of the city of Watertown.
166. (Assembly, 45.) An act to amend the charter of the Arctic Fire Insurance Company in the city of New York.
167. An act to confirm and legalize the official acts of the directors of the Odd Fellows' Relief and Benevolent Association of the city of Syracuse during the years 1871, 1872 and 1873, and to transfer the real and personal property of said association to Mutual Benefit Association of Syracuse.
168. An act to incorporate the Utica Masonic Hall Association.
169. An act to amend the charter of the Missionary Society of the Methodist Episcopal Church.
170. An act to authorize the First Congregation of Disciples of Christ, of Brewerton, Onondaga county, to elect trustees.
171. An act to amend an act entitled "An act to incorporate an association for the relief of respectable, aged, indigent females in the city of New York," passed March 10, 1815, and the acts continuing in force and amending the same.
172. An act for the improvement of the east and west branches of the St. Regis river.
173. (Assembly, 90.) An act to amend an act entitled "An act to incorporate the Lewiston Suspension Bridge Company," passed March 26th, 1849.
174. An act to alter the system of repairing the highways.
175. An act to constitute the village of Brewerton, in the county of Onondaga, a separate road district.
176. (Assembly, 101.) An act to enable the supervisors of the county of Tioga to convey title of the old county clerk's office, and the land on which it is built, to the school commissioners of the union schools of the village of Owego.
177. (Assembly, 100.) An act to define and establish the boundaries of school district number five of the town of Flushing, Queens county; to provide for the purchase of a new school-house site and erection of a new school-house thereon, and for the sale of the present school-house and site in said school district.

a. o.

178. An act to make further provision for the support and maintenance of the common schools in the town of Newtown, Queens county. ,
179. An act to authorize the Dry Dock, East Broadway and Battery Railroad Company to extend their tracks through certain streets in the city of New York.
180. An act to lay out a public road or highway in the town of Hempstead, Queens county.
181. An act in relation to the performance of labor upon the highways and bridges in the towns of Oyster Bay, Hempstead and North Hempstead, in the county of Queens.
182. An act to provide for the reduction of the costs of printing in the county of Niagara.
183. An act regulating the payment of accounts by county treasurers, audited by the board of supervisors in the several counties of the State.
184. An act concerning dogs, and for the protection of sheep and other domestic animals.
185. An act in relation to the issue and registry of the bonds of the city of Buffalo.
186. (Assembly, 72.) An act to amend chapter 809 of the Laws of 1872, entitled "An act to authorize the construction of a sewer in the county of Kings, from the county buildings at Flatbush, in said county," passed May 21st, 1872.
187. (Assembly, 120.) An act to amend section 1 of chapter 730 of the Laws of 1871, entitled "An act in relation to highways in the county of Rockland."
188. (Assembly, 65.) An act requiring commissioners of highways to give notice of the discontinuance of public highways.
189. (Assembly, 50.) An act to amend an act entitled "An act to establish and amend the charter of the village of Deposit," passed March 2d, 1858, and the acts amendatory thereto.
190. (Assembly, 80.) An act for the preservation of the timber and stone on the Onondaga Indian reservation.
191. An act to amend an act entitled "An act to incorporate the Brooklyn Steam Transit Company," passed June 2d, 1871.

G. O.

192. An act to incorporate the New York Warehouse and Railway Company, and to provide improved wharves and warehouses in the city of New York, and also adequate means for the transportation of freight and passengers within the city of New York and county of Westchester.
193. An act establishing a quarantine and defining the qualifications, duties and powers of the health officer for the harbor and port of New York.
194. An act in regard to peremptory challenges of grand and petit jurors in courts of record in the county of Westchester.
195. An act in relation to petit jurors in courts of record in the county of Westchester.
196. An act to amend an act entitled "An act for the better security of mechanics and others erecting buildings in the counties of Westchester, Oneida, Cortland, Broome, Putnam, Rockland, Orleans, Niagara, Livingston, Otsego, Lewis, Orange and Dutchess, passed April 17, 1854," and as amended by chapter 558 of the Laws of 1869, entitled "An act for the better security of mechanics and others erecting buildings in either of the counties of this State, except the counties of Erie, Kings, Queens, New York and Onondaga."

TWENTY-NINTH ANNUAL REPORT

OF THE

SUPERINTENDENT OF PUBLIC INSTRUCTION AND THE
REGENTS OF THE UNIVERSITY,

ON THE

NEW YORK STATE NORMAL SCHOOL

AT ALBANY,

FOR THE YEAR 1872.

TRANSMITTED TO THE LEGISLATURE FEBRUARY 21ST, 1873.

ALBANY:
THE ARGUS COMPANY, PRINTERS.
1873.

STATE OF NEW YORK.

No. 44.

IN SENATE,

February 21, 1873.

TWENTY-NINTH ANNUAL REPORT

OF THE

SUPERINTENDENT OF PUBLIC INSTRUCTION AND THE
REGENTS OF THE UNIVERSITY, ON THE NEW YORK
STATE NORMAL SCHOOL AT ALBANY.

To the Legislature :

Pursuant to the act, chapter 318, of the Laws of 1848, the undersigned herewith transmit their annual report for the year ending July, 1872, containing a full account of their proceedings, and of the expenditures of money for the support of said school, together with a statement of the condition and prospects thereof, as shown by the accompanying report of the executive committee.

ABRAM B. WEAVER,
Superintendent of Public Instruction.

JOHN V. L. PRUYN,
Chancellor of the University.

Dated, *February* 20, 1873.

REPORT.

To the Superintendent of Public Instruction and the Regents of the University :

The Executive Committee of the New York State Normal School at Albany respectfully report :

The school year closing July 2, 1872, was one of increased prosperity. It embraced the fifty-fifth and fifty-sixth terms, during which two hundred and twenty-two students were admitted. Their average age was a little less than twenty years. The average time spent in teaching before entering the school was a little more than one term and a half.

The whole number of pupils in attendance during the year ending September 30, 1872, was five hundred and fifteen. The number of counties represented in the school was forty seven.

The number of graduates of the fifty-fifth term was :

Gentlemen.....	8	
Ladies.....	23	
	—	31

Of the fifty-sixth term :

Gentlemen.....	15	
Ladies.....	36	
	—	51

Total graduates of the year.....	82
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With scarcely an exception, they are engaged in teaching, and with the most gratifying success.

At the close of the fifty-sixth term, Miss Ella L. Keyes resigned her position as Principal of the Primary Department, and Miss Ella C. Kirkland, a graduate of the fifty-fourth term, was appointed to the vacancy. At the same time, in consequence of the increased number of students, Miss Ella C. Van Sickle, a graduate of the fifty-third term, was added to the corps of teachers.

A statement of receipts and expenditures is hereto annexed, and vouchers for every payment are in the hands of the committee.

The committee continue to bear unqualified testimony to the diligence and good conduct of the pupils, and to the ability, faithfulness and zeal of the Faculty.

They believe that the school is fully accomplishing the purposes of its establishment, and that it is in all respects worthy of public confidence and entitled to a liberal support.

Respectfully submitted.

FRANKLIN TOWNSEND.

S. B. WOOLWORTH.

JOHN V. L. PRUYN.

FINANCIAL REPORT.

NEW YORK STATE NORMAL SCHOOL AT ALBANY IN ACCOUNT WITH
EXECUTIVE COMMITTEE, 1871-1872.

Cr.

Balance from last year (see Assembly Document No. 24),	\$2,215 37
Appropriation for support of school.....	15,980 00
Tuition in Model School.....	4,320 00
Tuition in Primary School.....	1,009 25
Interest on deposits in bank.....	108 24
Balance due Treasurer.....	270 62
	<hr/>
	\$23,903 48
	<hr/> <hr/>

Dr.

Paid salaries.....	\$13,200 00
“ text books and apparatus.....	777 74
“ mileage to students.....	800 95
“ repairs.....	1,770 72
“ expenses of Model School.....	3,140 66
“ expenses of Primary School.....	1,315 77
“ fuel.....	698 58
“ contingents.....	2,179 06
	<hr/>
	\$23,903 48
	<hr/> <hr/>

The following is a full list of the present officers of the school in all departments :

FACULTY.

JOSEPH ALDEN, D. D., LL. D., President, and Professor of Mental and Moral Philosophy.

LE ROY C. COOLEY, A. M., Ph. D., Professor of Natural Science.

CHAUNCEY W. ALLEN, A. M., Superintendent of the Model School.

ALBERT N. HUSTED, A. M., Professor of Mathematics.

WILLIAM V. JONES, A. M., Teacher of Mathematics.

JOHN B. MARSH, Teacher of Vocal Music.

MISS KATE STONEMAN, Teacher of Geography, Map Drawing and Penmanship.

MISS REBECCA HAND, Teacher in the Model School.

MRS. EMILY A. TAYLOR, Teacher of Ethics and Elocution.

MISS AMELIA E. DALEY, Teacher of Rhetoric and English Literature.

MISS MARY A. McCLELLAND, Teacher of English Grammar and History.

MISS MARY F. HYDE, Teacher of Arithmetic and Geometry.

MISS JOSEPHINE E. SEAMAN, Associate Teacher of Rhetoric and English Grammar.

MISS ELLA C. KIETLAND, Principal of the Primary School.

MISS ELLA VAN SICKLE, Teacher of Arithmetic and Algebra.

DOCUMENTS

ACCOMPANYING THE ANNUAL REPORT OF THE EXECUTIVE COMMITTEE.

(A.)

Annual Register and Circular of the New York State Normal School for the Year beginning October 1, 1871, and closing September, 30, 1872.

EXECUTIVE COMMITTEE.

HON. ABRAM B. WEAVER, Superintendent of Public Instruction, Chairman.

HON. FRANKLIN TOWNSEND.

SAMUEL B. WOOLWORTH, LL. D., Secretary and Treasurer.

JOHN V. L. PRUYN, LL. D.

JACOB F. MOSHER, M. D.

FACULTY.

JOSEPH ALDEN, D. D., LL. D. President, and Professor of Intellectual and Moral Philosophy.

LE ROY C. COOLEY, A. M., Ph. D., Professor of Natural Science.

CHAUNCEY W. ALLEN, A. M., Superintendent of the Model School.

ALBERT N. HUSTED, A. M., Teacher of Mathematics.

WILLIAM V. JONES, A. M., Teacher of Mathematics.

JOHN B. MARSH, Teacher of Vocal Music.

Miss KATE STONEMAN, Teacher of Geography, Map Drawing and Penmanship.

Miss REBECCA HAND, Teacher in the Model School.

Miss ELLA L. KEYES, Principal of the Primary School.

Mrs. EMILY A. TAYLOR, Teacher of Elocution.

Miss AMELIA E. DALEY, Teacher of Rhetoric and English Literature.

Miss MARY A. MCCLELLAND, Teacher of English Grammar and History.

Miss MARY F. HYDE, Teacher of Arithmetic and Geometry.

Miss JOSEPHINE E. SEAMAN, Associate Teacher of Rhetoric and English Grammar.

Miss ELLA C. KIRTLAND, Teacher in the Primary School.

STUDENTS.

Names.	Towns.	Counties.
Eliza W. Ackroyd.....	Ireland's Corners.....	Albany.
Alvaro J. Adams	North Nassau.....	Rensselaer.
William Agor	Mahopac Falls	Putnam.
Mary Aldrich	Sparrow Bush	Orange.
Mary C. Alexander.....	Cedar Hill	Albany.
Mary J. Alexander.....	Lake	Washington.
Mary W. Alexander.....	Bethlehem	Albany.
Sarah A. Alexander	Cedar Hill	Albany.
Emma J. Alger.....	Ames	Montgomery.
Helen A. Allen	Brooklyn.....	Queens.
George E. Anderson.....	Mahopac Falls	Putnam.
Carrie M. Angus.....	Albany	Albany.
Taphenes Armstrong	West Township.....	Albany.
Alvaro D. Arnold.....	Hartford	Washington.
S. Elizabeth Arnold	Hartford	Washington.
Altana Atchinson	Jefferson	Schoharie.
Ella J. Atchinson	Jefferson	Schoharie.
Charles Atwood	Hartford	Washington.
Edward Atwood	Hartford	Washington.
Edith E. Austin	Lumberland	Sullivan.
Annie Avery.....	Cold Spring	Putnam.
Abbie B. Ayer	North Greenbush	Rensselaer.
Henrietta A. Bancroft ...	Troy	Rensselaer.
Jennie M. Bancroft	Troy	Rensselaer.
Sarah M. Barnum.....	Dover.....	Dutchess.
Leonard W. Barrett	Fort Ann	Washington.
Mattie L. Barrett	Fort Ann	Washington.
Sophia Barthell.....	Troy	Rensselaer.
Ella Beattie	West Troy	Albany.
Martha J. Becker	Cobleskill	Schoharie.
Emma Beckwith.....	Stissing	Dutchess.
Mary Beckwith	Stissing	Dutchess.
Orcelia Bedell	West Sandlake	Rensselaer.
Frances E. Bell.....	Bloomingburgh.....	Sullivan.

Names.	Towns.	Counties.
William A. Bell	Bloomington	Sullivan.
Laura M. Benedict	Jonesville	Saratoga.
Hattie Bergh	Breakabeen	Schoharie.
Mary Betts	West Laurens	Otsego.
Mattie J. D. Bidwell	West Sandlake	Rensselaer.
Mattie I. Bigelow	Worcester	Otsego.
John F. Birch	Bethlehem	Albany.
Carrie Bishop	Castile	Wyoming.
Hector W. Blake	Naples	Ontario.
Iantha L. Blessing	New Scotland	Albany.
Eunice I. Bogardus	Knox	Albany.
Frank M. Bogert	Nanuet	Rockland.
Mary E. Bolles	Central Bridge	Schoharie.
Alice V. Boshart	Johnstown	Fulton.
Eleanore L. Boutelle	Normanskill	Albany.
Eunice E. Brayton	Hartford	Washington.
Carrie F. Bridge	Le Roy	Genesee.
Tamma A. Bristol	Amenia	Dutchess.
Aggie L. Bromley	Albany	Albany.
Agnes M. Brown	Corinth	Saratoga.
J. Arthur Brown	Monticello	Sullivan.
Carrie F. Brown	Butternuts	Otsego.
William L. Brown	Johnsons	Orange.
Sarah Brownell	Johnstown	Fulton.
Mary Bunyan	West Charlton	Saratoga.
Clara D. Burnop	Albany	Albany.
Sarah Busch	Wolfe Island	Canada.
Elizabeth H. Buss	Albany	Albany.
Julia Byrne	New Paltz	Ulster.
Kate Byrnell	Cooperstown	Otsego.
Florence Cady	Fort Ann	Washington.
Martha Calkins	Rock City Falls	Saratoga.
Mary Calkins	Rock City Falls	Saratoga.
Mary E. Callaghan	Charlton	Saratoga.
Susie A. Callaghan	Saratoga Springs	Saratoga.
Margaret J. Callahan	Tarrytown	Westchester.
Maggie Callicott	Osceola	Lewis.
Sarah A. Carey	Albany	Albany.
Lewis J. Carmichael	East Schodack	Rensselaer.

Names.	Towns.	Counties.
Mary A. Carpenter.....	Ausable Forks.....	Essex.
Elizabeth Carrick.....	Albany	Albany.
Lettie Carrier.....	Albany	Albany.
Ella C. Case.....	Albany	Albany.
Carrie E. Casper.....	Barryville	Sullivan.
Frances P. Cass.....	Decatur... ..	Otsego..
Lewis Cass.....	Decatur.....	Otsego.
Sarah B. Chamberlin....	Saratoga Springs.....	Saratoga.
Allie T. Chapman.....	South Amenia.....	Dutchess.
Lydia C. Chase.....	Albany	Albany.
Calista Chauncey.....	Colliersville	Otsego.
Adelia Chesbrough.....	Suspension Bridge.....	Niagara.
Gussie I. Churchill.....	Albany	Albany.
Jennie Clapperton.....	Albany	Albany.
Lydia J. Clother.....	Corinth	Saratoga.
Asa E. Cobb	Dunning	New York.
Ida Cobb.....	Dunning	New York.
Mary E. Cobb	Dunning	New York.
Etta Coe.....	Gloversville.....	Fulton.
Katie Cogley.....	Hammonton	New Jersey.
Frank Cole.....	Schenevus.....	Otsego.
Jennie P. Cole.....	Schenevus.....	Otsego.
Patrick H. Collins	Princetown.....	Schenectady.
Margie Comstock	Voorheesville	Albany.
Josephine Congdon.....	Beekmansville.....	Dutchess.
Elizabeth A. Conway....	Albany.....	Albany.
Bernetta M. Cooper.....	Ridgebury	Orange.
Jennie T. Corbett.....	Albany....	Albany.
Walter Costigan	Esopus	Ulster.
Henry Cox.....	Homowack	Ulster.
Marietta Craft	Jefferson	Schoharie.
Ida S. Crane	Ballston, Spa	Saratoga.
Edith Crary.....	Knox.....	Albany.
Nancy R. Crary.....	Knox	Albany.
Oliver C. Crawford.....	Middletown	Orange.
Julia B. Crosby.....	Albany.....	Albany.
Ermina F. Crumb	Peekskill.....	Westchester.
Ellen Curry.....	Mahopac Falls.....	Putnam.
Libbie Curtis.....	Saratoga Springs.....	Saratoga.
Ella E. Cuseno.....	Patterson	Putnam.

Names.	Towns.	Counties.
William S. Daley.....	Tompkinsville	Richmond.
Belle H. Dalton	Albany.....	Albany.
Amelia F. Darrow	Hebron	Washington.
Susie C. Davenport.....	Towanda.....	New York.
Martha E. Davidson.....	Addison	Steuben.
William B. Davidson....	Addison	Steuben.
Anna Davis.....	Glasco.....	Ulster.
Augustus Davis.....	Pawling	Dutchess.
Arthur Day	Milton Centre	Saratoga.
Charles W. Dayton.....	North Harpersfield	Delaware.
Jennie Dean.....	Patterson	Putnam.
Lizzie De Baun.....	Nyack Turnpike.....	Rockland.
Libbie Deming	Albany.....	Albany.
Jerome Denna.....	Cold Spring.....	Putnam.
Louise E. Dewey.....	Central Bridge.....	Schoharie.
Flora Dickerman	Wassaic.....	Dutchess.
Libbie Dockstader.....	Sharon Centre.....	Schoharie.
Anna K. Dodds.....	Albany	Albany.
Bruce Dodge	Corfu.....	Genesee.
Hattie Donaldson.....	West Sandlake	Rensselaer.
Mary I. Donaldson.....	Crum Elbow.....	Dutchess.
Chester G. Douglass.....	Pawlet	Erie.
Mary E. Dumont	North Greenbush.....	Rensselaer.
Annie S. Dunham.....	Saratoga Springs.....	Saratoga.
Emma J. Earl.....	Bangall	Dutchess.
Jennie E. Elton.....	Hall's Corners.....	Ontario.
Helen Emerson.....	Wilton	Saratoga.
Mary Emigh.....	Freedom Plains.....	Dutchess.
Lizzie J. Emmett.....	Castile	Wyoming.
Mary S. Empie.....	West Sand Lake	Rensselaer.
George W. Englehart....	Green River.....	Columbia.
Emma Fagan	Schodack Landing.....	Rensselaer.
Sarah E. Farman.....	Vernon	Oneida.
Anna Farrell	Gansevoort.....	Saratoga.
Celia S. Fellows.....	Albany	Albany.
Emily Feltham	Albany	Albany.
Mattie Fenton.....	North Greenbush	Rensselaer.
Aggie Ferguson.....	Mount Vernon.....	Westchester.
Cornelia Ferguson.....	East Springfield.....	Otsego.
Hattie M. Field.....	Albany	Albany.

Names.	Towns.	Counties.
Perry Field.....	Hartwick	Otsego.
Laurie J. Filkins.....	Crescent	Saratoga.
Sylvester Finch.....	East Chatham.....	Columbia.
Virtue S. Fish.....	Otego	Otsego.
Frances Fisher.....	Ballston Spa.....	Saratoga.
Nathaniel P. Fisher	Carmel	Putnam.
Mary E. Fitts.....	Cohoes	Albany.
Minnie M. Fleeman.....	Hartford	Washington.
Ida B. Fonda	North Greenbush.....	Rensselaer.
James H. Forman.....	Cold Spring.....	Putnam.
Libbie Fort.....	New Scotland	Albany.
James H. Fowler.....	Brewster's Station.....	Putnam.
Hattie Frazee.....	Gilboa	Schoharie.
Emma L. French.....	Athens	Greene.
Mary Frost.....	Albany	Albany.
Kate F. Gaines.....	New Scotland.....	Albany.
B. H. Gallup	Knowersville	Albany.
Mary E. Galvin	Albany	Albany.
Libbie Gardineer.....	Albany	Albany.
Ida Gardiner	Central Bridge	Schoharie.
Addie M. Gaylord	Stamford.....	Delaware.
Charles W. Geel	Albany	Albany.
Leverett W. Giffin.....	Heuvelton	St. Lawrence.
William M. Giffin	Heuvelton	St. Lawrence.
Elias Glen	Rose Valley.....	Wayne.
Gertrude M. Gordon.....	Albany	Albany.
Nellie E. Gordon	Batchellerville	Saratoga.
Sanford S. Gowdey.....	Bloomburgh	Sullivan.
Grace Grey	Bethlehem	Albany.
Libbie Griffin.....	Wing's Station.....	Dutchess.
Olevia Griffin	Wing's Station.....	Dutchess.
Carrie A. Groot	Auburn.....	Cayuga.
John B. Hagarty	North Greenwich	Washington.
Annie Haight	Cold Spring	Putnam.
Eugene Haight	Fishkill	Dutchess.
Georgie Haight.....	Spring Valley	Rockland.
Maude A. Haight	Little Rest	Dutchess.
Susie A. Haight.....	Little Rest	Dutchess.
Mary E. Hall.....	Little Rest	Dutchess.
Gettie Hamburger	Albany	Albany.

Names.	Towns.	Counties.
Ida Hand	Albany	Albany.
Tillie Hanna	Brooklyn	Kings.
Dora C. Hanor	Schenevus.....	Otsego.
Josephine R. Hardy	Groveland	Chatauqua.
Frank S. Harris.....	Bloomington	Sullivan.
Mary L. Harris	West Troy	Albany.
Mary S. Harris	Smith's Basin.....	Washington.
Rosetta Hartnett.....	Albany	Albany.
Mary E. Hawkes.....	Ballston Spa	Saratoga.
Maggie F. G. Hayes.....	Albany	Albany.
Mary C. Hayes	Albany	Albany.
Foster G. Heaxt.....	Newtonville	Albany.
Lillie Heaxt.....	Newtonville	Albany.
Arvilla Hemstreet	Esperance	Schoharie.
Henrietta Hemstreet.....	Esperance	Schoharie.
Laura B. Hendrickson ..	Albany	Albany.
Carrie Hill.....	Mahopac Falls.....	Putnam.
Frank Hill.....	Quaker Springs.....	Saratoga.
Laura Hill	Quaker Springs.....	Saratoga.
Kia Hilts	Breakabeen.....	Schoharie.
Frederic J. Hinds	East Greenwich.....	Washington.
Theodore H. Hiserodt ..	Millerton	Dutchess.
Alice K. Hoes	Albany.....	Albany.
Libbie Hoffnagle	Essex	Essex.
John W. Holean.....	Halfmoon	Saratoga.
Susie A. Holt.....	Locust Grove.....	Lewis.
Clara A. Horton	Albany	Albany.
Franklin N. Horton.....	Brewster's Station.....	Putnam.
Emma L. Hotchkiss.....	Albany.....	Albany.
Isaac E. House.....	Nyack Turnpike.....	Rockland.
Mary E. Howard.....	Oak Hill.....	Greene.
Malvina F. Howes	Brewster's Station.....	Putnam.
Luther Hoyt	Saratoga Springs.....	Saratoga.
Mary E. Hughes	Hartford	Washington.
Mary A. Hutchins.....	Ballston	Saratoga.
Edith Hyatt.....	Albany.....	Albany.
Addie E. Hyde	Hartwick	Otsego.
Harriet C. Ingersoll	Austerlitz	Columbia.
Ella L. Johnson.....	West Troy.....	Albany.
William Johnson.....	Ovid	Seneca.

Names.	Towns.	Counties.
Daniel S. Jones.....	Kortright Centre	Delaware.
Mildred E. Jones.....	Harrisburgh	Lewis.
Rose L. Jones	Kortright.....	Delaware.
Mary Kearney.....	Albany.....	Albany.
Emma J. Keefer.....	Keefer's Corners.....	Albany.
Christopher Keller	South Valley	Otsego.
Frank L. Kelly.....	Hopewell	Ontario.
Carrie Kennedy	Union Springs.....	Cayuga.
John F. Kent.....	Leyden	Lewis.
Emma M. Kessler.....	Chatham Centre.....	Columbia.
Cassie A. Ketcham.....	New Paltz	Ulster.
Priscilla Kimmey.....	Bethlehem	Albany.
Albert E. Knight	Clifton Park.....	Saratoga.
Helen M. Kyle	Albany.....	Albany.
Mollie B. La Grange.....	Normanskill	Albany.
Carrie E. Lane.....	Gilboa	Schoharie.
Kittie G. Lansing.....	Lisha's Kill.....	Albany.
Mina Larmon.....	Schuylersville	Saratoga.
Hattie C. Lasher.....	Albany.....	Albany.
Lizzie B. Lathrop.....	Albany.....	Albany.
Addie V. Lee.....	Beekmansville.....	Dutchess.
Emma J. Lee.....	Beekman	Dutchess.
Amanda M. Lent.....	Peekskill	Westchester.
Smith Lent.....	Peekskill	Westchester.
John R. Lepper.....	Erieville	Madison.
Felix Lesson.....	Hartford	Washington.
Alma Lewis.....	South Livonia.....	Livingston.
William Lewis.....	Brewster's Station.. .	Putnam.
Alice E. Leonard.....	Hampton	Washington.
Thomas A. Lillie.....	Putnam.....	Washington.
Myron D. Lincoln.....	Charlotteville	Schoharie.
Zilpha Lincoln.....	Charlotteville	Schoharie.
Carrie E. Locke.....	Brooklyn	Kings.
Mary E. Lockwood.....	Castile.....	Wyoming.
Hattie Lomax.....	Albany	Albany.
Louisa E. Longenecker...	New York.....	New York.
John R. Loveland.....	Dunnings	Pennsylvania.
Emma V. Ludden.....	Brunswick Centre.....	Rensselaer.
James J. Lynch.....	Sandburgh	Sullivan.
Belle Lynd.....	Albany	Albany.

Names.	Towns.	Counties.
Amelia B. Lyon.....	Hartwick	Otsego.
Corinna E. Lyon.....	West Troy.....	Albany.
Kate Lyons.....	Bath	Rensselaer.
Helen I. Mackey.....	Gilboa	Schoharie.
Maggie G. Madock.....	Albany	Albany.
Mary F. Madock.....	Albany	Albany.
Charles J. Majory.....	Greenbush	Rensselaer.
Freddie A. Mallory.....	Albany	Albany.
Julia F. Mallory.....	Albany	Albany.
Charles W. Manchester..	Berlin	Rensselaer.
Jacob H. Mann.....	Breakabeen	Schoharie.
Luther O. Markham.....	West Fulton.....	Schoharie.
Emma A. Mason.....	Glen's Falls.....	Warren.
Helen M. Mason.....	Glen's Falls.....	Warren.
Mary A. Massey.....	Milton Centre.....	Saratoga.
Harriette Matthews.....	Johnstown	Fulton.
W. Buckingham Matson.	Schodack Landing.....	Rensselaer.
Victoria M. Matteson....	Harmony	Chautauqua.
Annie McAvinue.....	Little Falls.....	Herkimer.
Monemia McBain.....	Lisha's Kill	Albany.
Helen McCloy.....	West Hebron.....	Washington.
Bell McConkey.....	Spraker's Basin.....	Montgomery.
Cassie J. McEachron.....	Argyle	Washington.
John W. McElwee.....	Millerton	Dutchess.
S. Jennie McHarg.....	Amsterdam	Montgomery.
Nancy A. McKane	Amenia.....	Dutchess.
Frederick A. McLaren...	Heuvelton	St. Lawrence.
Hannah E. Meade.....	Cold Spring.....	Putnam.
Charles E. Merritt.....	Port Chester.....	Westchester.
Jennie E. Mesick.....	Bethlehem Centre.....	Albany.
Reuben Michael.....	Lassellsville	Fulton.
Frances Middleton	Olmsteadville.....	Essex.
Julia E. Moat.....	Normanskill	Albany.
Verta E. Moffat.....	Otego	Otsego.
Henrietta Moody.....	Poestenkill	Rensselaer.
Harrison S. Moore.....	Halfmoon	Saratoga.
Mary Morehouse	Ballston.....	Saratoga.
Kate Morford.....	Charleston	Montgomery.
Jennie V. Mors.....	Waterford	Otsego.
Alida Mosher.....	Bangall	Dutchess.

Names.	Towns.	Counties.
Hannah Mosher.....	Bethlehem Centre.....	Albany.
David Mosher	Lake Hill.....	Ulster.
Albert Mott.....	West Sand Lake.....	Rensselaer.
Emma Mott	West Sand Lake.....	Rensselaer.
Sarah Mott.....	Schuylerville	Saratoga.
Marcus H. Mullenneaux..	Cornwell	Orange.
Abby C. Munsig.....	Bethlehem	Albany.
Ida E. Munsig.....	Bethlehem	Albany.
Minnie B. Murrell.....	Stuyvesant Landing	Columbia.
Sarah C. Myers	Bethlehem Centre.....	Albany.
Theodore J. Neville	Argusville	Schoharie.
Kate Newkirk.....	Oakland Valley.....	Sullivan.
Esther Niver.....	North Greenbush.....	Rensselaer.
Maggie Nixon.....	Greenbush	Rensselaer.
Sarah Nixon.....	Greenbush	Rensselaer.
Kate L. Noonan.....	Albany	Albany.
Emma H. North.....	Auburn.....	Maine.
Fannie E. Noyes.....	Batchellerville	Saratoga.
Clarence A. Oakley.....	Ancram Lead Mines....	Columbia.
Huldah A. Ogden.....	East Line.....	Saratoga.
Gilbert Olin.....	West Oneonta.....	Otsego.
Hambly P. Orchard.....	Beekmanville	Dutchess.
Mary J. Osborne.....	West Troy ...	Albany.
Ella H. Ostrom.....	Charlton	Saratoga.
Ella Ottman.....	Albany	Albany.
Anna Packer.....	Charlton.....	Saratoga.
Andrew S. Parish.....	Oneonta	Otsego.
Le Grand Parish.....	Oneonta	Otsego.
Mary S. Parish.....	Oneonta	Otsego.
Quincey Parish	Oneonta	Otsego.
Anna J. Parker.....	Hudson ..	Columbia.
Alberta Parkhill.....	Painted Post.....	Steuben.
Annah Parkhill	Painted Post.....	Steuben.
Grace A. Parmele	Greenbush	Rensselaer.
Izzie A. Parmele.....	Greenbush	Rensselaer.
Alexander V. Paterson..	Ogdensburgh	St. Lawrence.
Charles R. Patterson	West Sand Lake.....	Rensselaer.
Laura W. Patterson.....	South Livonia.....	Livingston.
Mary Patterson	West Sand Lake.....	Rensselaer.

Names.	Towns.	Counties.
Sarah A. Paul.....	East Line.....	Saratoga.
John Pearsall.....	Saratoga Springs.....	Saratoga.
Clarence J. Peets	South Granville.....	Washington.
Sarah A. Perry.....	West Albany.....	Albany.
Lora T. Person	Batchellerville	Saratoga.
Della R. Phillips.....	Albany	Albany.
Edward T. Pierce	Walton	Delaware.
Elwin S. Piper.....	Saratoga Springs.....	Saratoga.
Emma Pollock.....	Odessa.....	Schuyler.
Fannie Powell.....	Peekskill.....	Westchester.
Nellie E. Pratt.....	West Albany.....	Albany.
Putman Pruyn.....	Mount Vision.....	Otsego.
Alice Reed.....	Arthursburgh.....	Dutchess.
Mary E. Reilly.....	Albany	Albany.
Libbie Reynolds	Greenbush	Rensselaer.
Frank Riley.....	Sandburgh	Sullivan.
Carlton M. Ritter.....	East Varick.....	Seneca.
Addison O. Roberts.....	North Greenbush.....	Rensselaer.
Mary A. Robertson.....	Lake	Washington.
Maggie A. Roche.....	Albany	Albany.
Emma L. Roe.....	Greenville.....	Greene.
Agnes M. Rogers.....	Mellenville	Columbia.
Kate A. Ronan.....	Albany	Albany.
James A. Rose.....	East Aurora.....	Erie.
Elwin E. Rowley.....	Bemis Heights.....	Saratoga.
Charles A. Rounds.....	Henderson	Jefferson.
Amy Rusk.....	Cambridge	Washington.
Chester H. Sample.....	Kendala.....	Seneca.
Katie A. Sawyer.....	Albany	Albany.
George R. Scase.....	Schodack Centre.....	Rensselaer.
William Schell.....	West Sand Lake.....	Rensselaer.
Gertie Schermerhorn....	Johnstown	Fulton.
Jennie Schermerhorn....	Johnstown	Fulton.
Eula Schultz.....	Ellenville	Ulster.
Lois Scofield.....	Poundridge.....	Westchester.
Louis N. Seaman.....	Castile	Wyoming.
Oscar B. Shaffer.....	New Paltz.....	Ulster.
Sarah E. Shaver.....	Albany	Albany.
Sarah Shaw.....	Galway	Saratoga.
Marcena Sherman.....	Castile	Wyoming.

Names.	Towns.	Counties.
Mary Z. Sherman.....	Castile	Wyoming.
Sarah F. Sherman.....	Castile	Wyoming.
Abbie Sherwood.....	Ballston.....	Saratoga.
Minnie Sherwood.....	Ballston.....	Saratoga.
Etta M. Shoudy.....	Duanesburgh	Schenectady.
Solon L. Slade.....	Greenbush	Rensselaer.
Addie Smeallie.....	West Charlton.....	Saratoga.
Emma V. Smith.....	Albany	Albany.
Mary Smith.....	Albany	Albany.
Louis H. Smith.....	Peekskill.....	Westchester.
Lizzie P. Snow.....	Batchellerville	Saratoga.
Sarah M. Soule.....	Milford	Otsego.
Alice Spencer.....	Unadilla	Otsego.
James P. Spiers.....	Meredith	Delaware.
John H. Stahlman.....	Schodack.....	Rensselaer.
Eugene Starkweather....	Worcester	Otsego.
Flora Starkweather.....	Worcester	Otsego.
Orinda Stearns.....	Washington	Dutchess.
Amelia R. Steiner.....	Rondout	Ulster.
Sarah J. Stewart.....	Johnstown	Fulton.
Mary T. St. John.....	Berne	Albany.
Asenath M. Stout.....	Perry City.....	Schuyler.
Olive Sturges.....	Auburn.....	Maine.
Hettie Swartwout.....	Huguenot	Orange.
Mary Swartwout.....	Huguenot	Orange.
Ida B. Sweet	Poughquag	Dutchess.
Ada A. Swezey.....	Newport	Herkimer.
Cora P. Swezey	Newport	Herkimer.
Georgia Swezey.....	Washington	Dutchess.
Ella L. Taylor.....	Charlton	Saratoga.
Emma R. Taylor.....	Charlton	Saratoga.
Cornelia Teachout.....	Crescent	Saratoga.
Burton L. Teel.....	Milford	Otsego.
Alfred Thomas.....	Worcester.....	Otsego.
Dora I. Thompson.....	North Greenbush	Rensselaer.
Mary Thomsom.....	Johnsburgh	Warren.
Mary Thornley.....	Albany	Albany.
Mary Tiffany.....	Quaker Street.....	Schenectady.
Nancy S. Tobey.....	Oneonta	Otsego.

Names.	Towns.	Counties.
Ella Tompkins.....	Greenbush	Rensselaer.
Mary L. Tompkins.....	Chappaqua	Westchester.
George Townsend.....	Greenville	Greene.
Frank Traver.....	Mansfield	Dutchess.
Maggie Traver.....	Mansfield	Dutchess.
Jennie C. Troughton.....	Bangall	Dutchess.
Lydia A. Turnbull.....	Lock Berlin.....	Wayne.
Frank H. Uline.....	West Sand Lake.....	Rensselaer.
Mary Urban.....	Nassau	Rensselaer.
Libbie Valentine.....	.....	Wyoming.
Alanson Van Aken.....	Voorheesville	Albany.
Emma Van Alstyne.....	Albany	Albany.
Anna Van Auken.....	Voorhesville	Albany.
Libbie Van Auken.....	Dunnsville	Albany.
Sarah Van Auken.....	Voorheesville.....	Albany.
Kittie E. Van Buren.....	Stockport	Columbia.
Sarah C. Van Buren.....	Stockport	Columbia.
Phebe Van Buren.....	Ballston	Saratoga.
Stella Van Courtlandt...	Pine's Bridge.....	Westchester.
Henry J. Van Denberg..	De Freestville.....	Rensselaer.
Herman C. Van Der Wart,	Albany	Albany.
J. L. Vanderwerker.....	Gansevoort.....	Saratoga.
Eva Van Deurs.....	Troy	Rensselaer.
Martha Van Deurs.....	Troy	Rensselaer.
Ella Van Deusen.....	Bethlehem.....	Albany.
Esther Van Deusen.....	De Freestville.....	Rensselaer.
Ida M. Van Deusen.....	East Berne.....	Albany.
Alice O. Van Kleeck....	Freedom, Plains.....	Dutchess.
Maria E. Van Schoonhoven	Albany	Albany.
James H. Van Sickle....	South Livonia.....	Livingston.
Bella Van Wie.....	Canandaigua	Ontario.
William J. Van Wie.....	Union Church.....	Albany.
Addie Vernooy.....	Brooklyn	Kings.
La Fayette Vincent.....	Hoag's Corner.....	Rensselaer.
Helen Vosburgh.....	Stuyvesant	Columbia.
Martha Waggoner.....	Quaker Street.....	Schenectady.
Christiana Waite.....	Albany	Albany.
Hattie Wait.....	Wing's Station.....	Dutchess.
Albert W. Walker	Stockbridge	Massachusetts.

Names.	Towns.	Counties.
Agnes E. Walter.....	Greenbush	Rensselaer.
Georgianna Walter.....	Albany	Albany.
Mary Walter.....	Albany	Albany.
Eleanora Wark	Albany	Albany.
Dwight D. Warne.....	East Varick.....	Seneca.
Rexa C. Warner.....	Unadilla	Otsego.
Stephen A. Warner	West Fulton.....	Schoharie.
Robert Washburn.....	Wilton	Saratoga.
John C. Waterman.....	East Poestenkill.....	Rensselaer.
Grace A. Welch	Gansevoort	Saratoga.
Laura E. Welling	Bethlehem Centre.....	Albany.
William L. Wellman....	Milford	Otsego.
Mary H. Wells	Ames.....	Montgomery.
George W. Wentworth..	Mt. Vision	Otsego.
Julia D. Wentworth.....	Mt. Vision	Otsego.
Mary Westfall.....	Schodack	Rensselaer.
Mary E. Wetherwax.....	Troy	Rensselaer.
Fannie Whaley.....	Wing's Station.....	Dutchess.
Lydia A. White.....	Corinth	Saratoga.
Mary E. White.....	Freedom Plains.....	Dutchess.
Mary J. Whitman.....	Auburn.....	Maine.
Annabel Wigent	Syracuse	Onondaga.
Henry H. Wilber.....	Mount Vision.....	Otsego.
Etta Williams.....	Canajoharie	Montgomery.
Libbie C. Williams.....	Schenevus	Otsego.
Mina Williams.....	Canajoharie	Montgomery.
Jay Wilsey.....	Otego	Otsego.
Ellen M. Wilson.....	Schenevus	Otsego.
Franklin Wilson.....	Hebron	Washington.
Kate M. Wilson.....	Albany	Albany.
Wilmer S. Wilson.....	Ovid	Seneca.
Carrie S. Winne.....	Bethlehem Centre.....	Albany.
Celia Winnie.....	New Scotland.....	Albany.
Arvine Woodin.....	Pawling	Dutchess.
Daniel W. Woodin.....	Pawling	Dutchess.
Fannie A. Works.....	Ausable Forks.....	Essex.
Irving Wright.....	Mahopac Falls.....	Putnam.
Daniel H. Wyckoff.....	Kensico.....	Westchester.
Elsie D. Wygant.....	Albany	Albany.

Names.	Towns.	Counties.
Emily Wynans.....	Albany	Albany.
Sarah Yawger.....	Union Springs.....	Cayuga.
Adella J. Zimmer.....	Gallupville	Schoharie.
Iva J. Zimmer.....	Gallupville	Schoharie.

GRADUATES OF THE FIFTY-FIFTH TERM,

AND THE SUBJECTS OF THEIR ESSAYS.

Mary C. Alexander..	Albany	The Age of Progress.
Martha C. Beecher...	Washington.	Motives.
Frank M. Bogert.....	Rockland ...	The Electric Telegraph.
Eunice E. Brayton...	Washington.	What we Women Want.
Clara D. Burnop.....	Albany	Books.
Hattie Donaldson....	Rensselaer ..	Recollections.
Mary E. Dumont.....	Rensselaer ..	Never too Old to Learn.
Nathaniel P. Fisher..	Putnam	The Spectroscope.
Libbie Fort.....	Albany	John Dryden.
Charles W. Geel.....	Sullivan	Commerce.
Susie A. Haight.....	Dutchess	Unfinished work.
Isaac E. House.....	Rockland ...	Obedience to Law.
Cassie A. Ketcham...	Ulster	Twilight.
Helen M. Kyle.....	Albany.....	Authors.
Carrie E. Lane.....	Schoharie ...	The Sun.
Freddie A. Mallory..	Albany	Reaping.
Julia F. Mallory.....	Albany	What is before us?
Luther O. Markham..	Schoharie ...	Spectrum Analysis.
Cassie J. McEachron.	Washington.	Individuality.
Sarah C. Myers.....	Albany	Life's Mission.
Mary S. Parish.....	Otsego	A Pleasant Trip.
Sarah A. Perry.....	Albany	The Way of the World.
Carlton M. Ritter....	Seneca	Heat.
Chester H. Sample...	Seneca	Originality.
Sarah M. Soule.....	Otsego	Object of Life.
Georgia Swezey	Dutchess ...	Labor.
Cornelia Teachout....	Saratoga ...	Thinking.
Ella Tompkins.....	Rensselaer ..	Shakespeare.
Mary L. Tompkins...	Westchester.	A Golden Wedding.
Herman C. Vanderwart	Lewis	Mental Growth.
Carrie S. Winne.....	Albany	Influence.

GRADUATES OF THE FIFTY-SIXTH TERM,

AND THE SUBJECTS OF THEIR ESSAYS.

Sarah A. Alexander..	Albany	Association.
S. Elizabeth Arnold..	Washington.	Unconscious Influence.
Altana Atchinson....	Schoharie ...	Memories.
Abbie Ayer.....	Rensselaer ..	Common Sense.
Jennie M. Bancroft...	Rensselaer ..	Law.
Martha J. Becker.....	Schoharie ...	The Elizabethan Age.
Emma Beckwith.....	Dutchess....	Our Work.
Frances E. Bell.....	Sullivan	Sowing.
Agnes L. Bromley....	Onondaga...	Types.
J. Arthur Brown....	Sullivan	Truthfulness.
Martha Calkins.....	Saratoga....	Ideal Excellence.
Mary Calkins.....	Saratoga....	Mathematics.
Mary Callaghan.....	Saratoga....	An Undiscussed Power.
Sarah B. Chamberlin.	Saratoga....	Educating Forces.
Lydia C. Chase.....	Columbia ...	Flowers.
Jennie P. Cole.....	Otsego	Exaggeration.
Edith Crary.....	Albany	Habit.
Nancy R. Crary.....	Albany	Patience.
Ellen Curry.....	Putnam	Lord Bacon.
William S. Daley....	Richmond ..	Genius.
Charles W. Dayton...	Delaware ...	Attention.
William B. Davidson.	Chenango...	Lessons from Biography.
Bruce Dodge.....	Genesee	Energy.
Mary Emigh.....	Dutchess ...	Anticipations.
Sylvester Finch.....	Columbia ...	Frivolous Words.
James H. Forman....	Putnam	Nat. Science in Com. Schools.
Maude A. Haight....	Dutchess....	Home.
Dora C. Hanor.....	Otsego	Charles Lamb.
Josephine R. Hardy..	Essex	Punctuality.
Frank S. Harris.....	Sullivan	Retrospect and Prospect.
Clara A. Horton.....	Albany	Power of Words.
Thomas A. Lillie....	Washington.	British Opinions.
Emma Ludden	Rensselaer ..	Oral Teaching.
Charles J. Majory....	Rensselaer ..	The Teacher not Made.
Helen Mason.....	Washington.	Mental Discipline.
Harriette Mathews...	Fulton	Recollections.
W. Buck'gham Matson,	Rensselaer ..	The Aurora.

Victoria Matteson....	Chautauqua .	The Invisible World.
John W. McElwee...	Dutchess . . .	The Press. \
Margaret Nixon	Rensselaer ..	Lilacs.
Fannie E. Noyes.....	Saratoga	Language.
Alberta Parkhill.....	Steuben	Covetousness.
Annah Parkhill.....	Steuben	Extremes.
Alex. W. Patterson..	St. Lawrence,	Elocution.
Mary M. Patterson...	Saratoga	Sir Philip Sidney.
Edward E. Pierce....	Delaware ...	Lavoisier.
Mary Z. Sherman....	Wyoming...	Results.
Alice O. Van Kleeck.	Dutchess . . .	Thought. .
Addie Vernooy.....	Queens	Early Impressions.
Geo. W. Wentworth..	Otsego	The Ballot.
Mary E. White.....	Dutchess....	Sir Walter Raleigh.

DESIGN OF THE NORMAL SCHOOL.

The design of the Institution is to furnish well qualified teachers for the public schools of the State of New York. Students receive a thorough drilling in all the branches which they will be called to teach, and in such other studies as experience has shown to be best adapted to discipline and develop the mind. Those who train the minds of others should themselves have well trained minds.

Besides receiving from the Faculty instruction in the art of teaching, the pupils are, at the proper stages of their progress, required to teach in the Model and Primary Schools, for a term of nine weeks, under the supervision and criticism of the Superintendent, and the teachers of the Normal School.

The course of instruction and practice occupies two years. The year is divided into two terms of twenty weeks each. The students are divided into four classes. These, for purposes of recitation, are subdivided into as many sections as circumstances may require.

COURSE OF STUDIES.

JUNIOR CLASS—FIRST TERM.

Arithmetic, Algebra, English Grammar, Geography, Physiology, Map Drawing, Penmanship.

JUNIOR CLASS—SECOND TERM.

Algebra continued, Higher Arithmetic, Elocution, Natural Philosophy, Botany, Rhetoric, English Grammar, Geometry, History of the United States.

SENIOR CLASS—FIRST TERM.

Geometry continued, Ethics, Natural Philosophy continued, Astronomy, Science of Government, Higher Algebra, the English Language, History, Mental Philosophy.

SENIOR CLASS—SECOND TERM.

English Literature, Mental Philosophy, Trigonometry and Surveying, Chemistry, Geology, Book-keeping, Evidences of Christianity, Butler's Analogy.

Composition and Vocal Music receive prominent attention throughout the course.

TERMS OF ADMISSION.

All candidates for admission to the school must furnish satisfactory evidence of good moral character.

Candidates for admission to the lowest class must, if ladies, be not less than sixteen years of age, and, if gentlemen, not less than eighteen. They must pass a satisfactory examination in Spelling, Reading, Writing, Geography, Arithmetic and English Grammar, and must subscribe a declaration that their object in connecting themselves with the school is to prepare themselves for the work of instruction in the public schools of the State.

Those who desire to enter on an advanced standing, must, in addition to the examination above mentioned, pass a satisfactory examination in all the studies which have been pursued by the class to which they seek admission.

Those who would avail themselves of the best advantages afforded by the institution, should take the whole course. A large part of the instruction given is oral. Much of this must be lost to those entering an advanced class. If any part of the course be omitted, it should be the latter part.

PERSONS ENTITLED TO ADMISSION.

Each county is entitled to twice as many pupils as it has representatives in the Assembly. Students are appointed by the Superintendent of Public Instruction, on recommendation of the School Commissioners, subject to the required examination. When the quota of a county is filled, candidates having the proper qualifications will be appointed to fill vacancies in the representation of other

counties, on application to the President. *As such vacancies have always existed, the School is practically open to all who desire to fit themselves to become teachers.*

CERTIFICATE OF APPOINTMENT.

To ABRAM B. WEAVER, *Supt. of Public Instruction :*

This will certify that..... of in the county of....., aged.....years, is recommended as a suitable candidate for appointment as a pupil in the State Normal School at Albany, from the.....Assembly District in the county of.....

.....
School Commissioner of the county of.....

Dated....., 18 .

The recommendations in each case should be sent to the Superintendent of Public Instruction for approval.

TUITION AND TEXT BOOKS.

Tuition and text-books are furnished free of charge. *Mileage about equal to the fare necessarily paid in coming by public conveyance to the School* will be paid to those who are present at the beginning of the term and remain till its close.

BOARD.

The price of board in respectable families varies from \$4.50 to \$5 per week, in most cases, exclusive of washing. Those who wish to board themselves, can procure furnished rooms at \$1 per week. By so doing, they can reduce their expenses for board to \$3 a week.

LIBRARY.

Besides an abundant supply of text-books upon all the branches of the course of study, there is a well-selected miscellaneous library, to which all the pupils have access, free of charge. The State Library is also freely accessible to all.

APPARATUS.

The chemical and philosophical apparatus of the school is large in all departments.

TERMS AND VACATIONS.

The year is divided into two terms of twenty weeks each.

The Fall Term begins on the second Wednesday in September.

The Spring Term begins on the second Wednesday in February.

PROMPT ATTENDANCE.

Students should reach Albany the day before the opening of the term. They should come at once to the Normal School building, whence they will be directed to boarding-houses approved by the faculty. They should retain their checks until they procure rooms, when their baggage will be delivered free of charge.

As the recitations begin immediately at the opening of the term, every day's absence must prove a serious disadvantage to the student.

DIPLOMAS.

The following diploma is given to those who complete the prescribed course of study and practice in teaching:

STATE OF NEW YORK, }
NORMAL SCHOOL, ALBANY, N. Y. [Date.] }

To whom it may concern:

This certifies that A. B., having been a member of the State Normal School, and having completed the prescribed course of study, is deemed by the Faculty of the Institution to be well qualified to enter upon the duties of a teacher.

[Signed by each member of the Faculty.]

In accordance with the above certificate, we, the Executive Committee, have granted this DIPLOMA.

[Signed by each member of the Executive Committee.]

By an act of the Legislature, passed April 11, 1849, "every teacher shall be deemed a qualified teacher who shall have in possession a Diploma from the State Normal School."

MILEAGE.

The following table will show the sum each student will receive at the end of the term as traveling expenses :

Counties.	Amount paid to each pupil.
Albany.....	
Allegany	\$9 30
Broome	4 00
Cattaraugus	9 00
Cayuga.....	3 75
Chautauqua	8 30
Chemung	7 00
Chenango.....	3 70
Clinton.....	5 50
Columbia	75
Cortland	4 05
Delaware	5 00
Dutchess .	1 50
Erie	6 00
Essex	5 60
Franklin	6 60
Fulton	1 50
Genesee	5 50
Greene	1 05
Hamilton.....	4 00
Herkimer.....	1 70
Jefferson	4 80
Kings	3 50
Lewis	4 00
Livingston	5 60
Madison	3 50
Monroe.....	4 60
Montgomery	90
New York.....	3 25
Niagara	5 75
Oneida	2 00
Onondaga	2 95
Ontario	4 50
Orange.....	2 65
Orleans.....	5 50
Oswego	4 00
Otsego	3 00
Putnam	2 00
Queens	3 75
Rensselaer	20
Richmond	3 50
Rockland	3 00
Saratoga.....	90
Schenectady	45
Schoharie.....	1 50

Counties.	Amount paid to each pupil.
Schuyler	5 50
Seneca	4 90
St. Lawrence	6 00
Steuben	8 00
Suffolk	5 50
Sullivan	4 55
Tioga	6 50
Tompkins	5 25
Ulster	2 00
Warren	3 25
Washington	2 50
Wayne	3 85
Westchester	3 00
Wyoming	7 00
Yates	5 50

THE MODEL AND PRIMARY SCHOOLS.

These schools are designed to furnish models of organization, government and instruction, and to afford ample opportunities for observance and practice on the part of the pupils of the Normal School.

Applications for admission to the model school should be made to the superintendent, Mr. Allen. For tuition and text-books, a charge is made of twenty dollars per term of nineteen weeks.

Applications for admission to the primary school should be made to the principal, Miss Kirtland. For tuition and text-books, a charge is made of twelve dollars and fifty cents per term of nineteen weeks.

PUPILS OF MODEL SCHOOL.

Phoebe Annesley.	Annie Corbett.
Grace Bostwick.	Kittie Corliss.
Jennie Brimhall.	Lula Cox.
Carrie Bronk.	Mamie Coyle.
Daniel Brownley.	Thompson Craig.
Willie Burgess.	Jennie Crocker.
Aurilla Button.	Katy Crummey.
Jennie Carmichael.	James Cuddy.
Libbie Chester.	Bella Cunliff.
Josie Clark.	Harry Oushman.
Alfred Cook.	Bella Dalton.
Alice Cook.	Nellie Delehanty.
James C. Cooley.	Katie Dunn.

James Eaton.
John Ellis.
Richard Ellis.
Mattie Fahnestock.
Aggie Flemming.
George Fort.
Cora Foster.
Brace N. Gallien.
Eddie Gallien.
Henry Gallien.
Lizzie Gascoigne.
Freddie Geller.
Isaac Gifford.
Mattie Goewey.
Katie Hagan.
Gertrude Gorden.
Libbie Gould.
Eloise Harvey.
Katie Harvey.
Katie Hawe.
Lucy Hawe.
Tillie Hawe.
Libbie Hawley.
Annie C. Hays.
Freddie Heller.
Ellwood Hendrick.
Nellie Hendrick.
Frank Hinkley.
Carrie Hitchcock.
Charlie Hitchcock.
Emma Jones.
Mary J. Keough.
Archie Lagrange.
Lizzie Lathrop.
Mannie Lathrop.
Edward Lee.
Lutie Maxwell.
Eddie McAllister.
Harry McGarvey.
Annie McGowan.
Katy McGowan.

Maggie Maddock.
Mary Maddock.
Rosa Mann.
Eliza Many.
Jessie Many.
Clement Martin.
James Martin, Jr.
Kate Martin.
Ettie Mills.
Thomas S. Murphy, Jr.
James Murphy.
Libbie O'Brien.
Jennie Osborn.
Eddie C. Osborn.
Schuyler Osterhout.
Willie P. Osterhout.
Freeman Ostrander.
Horace Palmer.
John Palmer.
Willie Palmer.
Frank Payne.
Howard D. Payne.
Anna Phelps.
Charles Piaget.
Sophia Piaget.
Kittie V. Rankin.
● J. Sanford Ransom.
Vina Rose.
Rozella Rust.
Mary Sawyer.
Arvilla Seward.
Willie H. Seward.
Annie Seymour.
Laura Seymour.
Emma Simmons.
Flora Simmons.
Lizzie Strain.
Hettie Ten Eyck.
Jennie Terrell.
John Turnouth.
George Vandemburgh.

Fort Van Rensselaer.	Amelia Weller.
Vroman Van Rensselaer.	Nellie Wendell.
Hooper C. Van Voerst.	Freddie White.
Charlie Veeder.	Alice Whitney.
Willie Veeder.	Bella Whitney.
Thomas Waring.	Willie H. Whitney.
Anna Waterbury.	Rensselaer Wilbur.
Laura Waterbury.	Katie Wilson.
Willie Watson.	Willie P. Wilson.

PUPILS OF THE PRIMARY SCHOOL.

Jessie Allen.	Arthur Lefevre.
Mary Bradt.	Jesse Leonard.
Willie Branion.	Harry Mayell.
Harry Christie.	Archie McGarvey.
Helene Cooley.	Jennie Maxwell.
Arthur Cornell.	Ritie Oliver.
Jennie Ford.	Emily Paine.
Willie Fort.	Lizzie Phelps.
Howard Foster.	Howard Rogers.
Addison Gallien.	Effie Russ.
Eddie Gearon.	Jennie Sawyer.
Frank Gearon.	Carrie Stevens.
Clara Geer.	Nellie Stevens.
Freddie Geer.	Freddie Sturtevant.
Katie Geller.	Charley Van Buren.
Mamie Groot.	James Van Derpoel.
Jamie Hendrick.	Charley Van Heusen.
Hattie Hitchcock.	Manning Van Heusen.
Willie Hotchkiss.	James Wendell.
Eddie Keyes.	Harry Wendell.
Charley Lathrop.	Bella Whitney.
Ritie Lathrop.	Harry Worcester.
Jennie Ledger.	Willie Worcester
	Charley Wright.

SUMMARY.

Normal School.....	515
Model School.....	126
Primary School.....	47
Total.....	<u>688</u>

STATE OF NEW YORK.

No. 45.

IN SENATE,

February 21, 1873.

PREAMBLE AND RESOLUTIONS

RELATIVE TO THE OFFICE OF THE COMMISSIONER OF QUARANTINE, AND THE EXPENDITURE OF MONEYS APPROPRIATED FOR QUARANTINE PURPOSES IN THE PORT OF NEW YORK DURING THE PAST THREE YEARS.

Mr. D. P. Wood offered the following preamble and resolutions, which were duly passed:

Whereas, Since the creation of the office of Commissioner of Quarantine in the year of 1863, nearly two millions of dollars have been appropriated and expended for quarantine purposes in the port of New York, more than one-half of which, it is alleged, has been expended during the past three years; and

Whereas, The property which has been acquired for the State by such expenditure consists mainly of the two artificial islands and the buildings erected or being erected thereon in the lower bay of New York, one of which is known as the Swinburne Island Hospital, and is designed for hospital purposes, and the other as Hoffman Island, and is designed as a place for the detention of those who have been exposed to disease; and

Whereas, It is alleged that the said first mentioned island was constructed and furnished ready for use in the early part of 1869 at an expense of \$425,000, while the foundation for the other was completed and ready for buildings in 1870, the contract price of such foundation being the sum of \$252,291.68, and the amount thereof

being provided for in the appropriations made previous to that year ; and

Whereas, Notwithstanding nearly one million of dollars have been appropriated for quarantine purposes since the year 1869, the buildings on said Hoffman Island are not yet completed or furnished ; and

Whereas, The board of commissioners, under whose supervision said islands were constructed, have never rendered a detailed account of their expenditures, whereby the propriety and necessity of said expenditures can be ascertained ; and

Whereas, At the last session of the Legislature a report was submitted to the Assembly by the committee of commerce and navigation, from which it appears that said board has been guilty of extravagant and improper expenditures of the moneys appropriated for the purposes aforesaid ; and

Whereas, The appropriations for the support of quarantine during the whole of the first half of the present century were less than is now required for its support for a single year ; therefore,

Resolved, That the board of commissioners constituted by chapter 751 of the Laws of 1866, be and they are hereby directed to transmit to the Senate, within ten days after service of a copy of the foregoing preamble and this resolution on their secretary or president, an account, verified by their treasurer, showing the amount of moneys expended by them since the date of their organization ; the amount of each separate expenditure and the special object thereof, what work has been performed and what materials have been furnished under contract, and the amount of each contract ; the amount expended in enlarging the rip-rap around each of said islands, and the number of yards added to each not embraced in the original contract for the erection thereof, and the amount paid for salaries of employes of said board and the nature of the services rendered by each, and that said board also report whether any liabilities have been incurred by them which remain unpaid, and, if so, for what purposes and to what amount.

Resolved, That, with a view to the reduction of the expenses of the administration of quarantine, the finance committee be and they are hereby directed to inquire into the expediency of abolishing the office of commissioner of quarantine and such other retrenchment as they may deem proper, and that they report by bill or otherwise to this Senate.

STATE OF NEW YORK.

No. 46.

IN SENATE,

February 21, 1873.

PREAMBLE AND RESOLUTION

AS TO THE QUALIFICATION OF WILLIAM M. TWEED AS A MEMBER OF THE SENATE.

Mr. JOHNSON offered the following resolution, which was ordered to be laid on the table and printed :

Whereas, It appears by the certificate issued by the Secretary of State, that William M. Tweed was elected a senator from the fourth senatorial district, to represent the said district in the Senate for the term of two years, from January first, 1872; and

Whereas, The said William M. Tweed has not claimed or taken his seat in the Senate, nor has he discharged the duties of his office as such senator, thereby leaving the fourth senatorial district unrepresented during the entire session of 1872, and so much of the present session as has already past; and

Whereas, It is alleged and charged that the said William M. Tweed has been guilty of grossly immoral conduct, unbecoming a senator; that he has corrupted members of the Legislature and dictated their action, and by the use of money secured the passage of laws by which he was enabled to control the entire municipal affairs of the city of New York; that he has robbed and plundered the people of the said city to the extent of millions of dollars; that he has been denounced by the press of the said city as a thief and a robber, and is now under indictment for various crimes and awaiting trial; therefore,

Resolved, That a committee of three be appointed by the President, with power to send for persons and papers, to investigate the said allegations and charges, and report the result of that investigation to the Senate, and also report as to the qualifications of the said William M. Tweed as a member of this body.

STATE OF NEW YORK.

No. 47.

IN SENATE,

February 25, 1873.

CONCURRENT RESOLUTION RELATIVE TO THE INDUSTRIAL EXHIBITION OF NEW YORK.

IN ASSEMBLY, *February* 12, 1873.

Whereas, The Legislature of the State of New York has created a corporation known as the "Industrial Exhibition Company of New York," which corporation proposes to erect a building intended to be the most attractive, by its munificence, beauty and utility, of any heretofore planned or executed, to be opened to the public as a "World's Fair Exhibition;" also to found a great public library, a national gallery of art and garden of plants; and,

Whereas, These objects, if carried out in the spirit in which they are undertaken, will tend to cultivate not only an improved and critical taste and emulation in the arts and sciences, but to bring before the population of the whole country the knowledge of the world in manufactures and discovery, and attract multitudes from foreign lands to examine the products, skill and ingenuity of our own; and,

Whereas, It has been the custom of general as well as local governments of all countries to encourage said similar institutions by full indorsement and cordial support, and to free from custom-house charges all materials used or exhibited therein, and also to relieve from taxation; and,

Whereas, The enterprise named, under the theory and policy of our own institutions that such projects shall be established by private means, has, nevertheless, such a claim upon the public, as a national matter, that it is reasonable and proper encouragement as well by the city and State of New York as by the whole United States; therefore

Resolved (if the Senate concur), That the senators and representatives of the State of New York are requested to urge such legislation, in Congress, as they may deem proper and correct, to speedily establish and efficiently aid the "Industrial Exhibition Company of New York."

Resolved (if the Senate concur), That a copy of this resolution shall be forwarded by the clerk of the House to each representative and senator in Congress.

STATE OF NEW YORK.

No. 48.

IN SENATE,

March 4, 1873.

LIST OF GENERAL ORDERS.

G. O.

197. An act for the protection of factory children.
198. An act to prevent injury to the public health and to animals by the use of salt upon thoroughfares and other places.
199. (Assembly, 105.) An act in relation to the division of the town of Yonkers.
200. An act re-appropriating a certain portion of the income of the United States Deposit Fund for the benefit of academies.
201. (Assembly, 94.) An act to incorporate the Long Island City and Maspeth Railroad Company.
202. An act to repeal section thirty-two, article three, title six, chapter five of part one of the Revised Statutes.
203. An act to extend and define the jail liberties of the county of Herkimer.
204. (Assembly, 121.) An act to authorize the town of Milo, in the county of Yates, to borrow money and to provide for the repayment of the same.
205. (Assembly, 54.) An act to equalize representation in the board of supervisors of Fulton county.
206. (Assembly, 32.) An act to authorize David S. S. Sammis to establish and continue a ferry across Fire Island or Great South Bay, from the village of Babylon to Fire Island beach, in the county of Suffolk.

G. O.

207. An act to authorize the construction of a railroad from, at or near Bath ferry, in the town of North Greenbush, to Douw's Point, in the town of East Greenbush, in the county of Rensselaer.
208. An act to authorize the election of a police justice in and for the village of Greenport, Suffolk county, and to prescribe his duties and compensation, and regulating charges in criminal proceedings in said village.
209. An act for the better protection of persons receiving information from commercial agencies.
210. (Assembly, 111.) An act to amend an act entitled "An act to authorize the Fall Brook Coal Company, a corporation of the commonwealth of Pennsylvania, to hold real estate and to lease and operate certain railroads."
211. An act for the relief of James Galway..
212. An act to repeal an act entitled "An act to remove the county site of Queens county, to procure a new county site, to appoint commissioners to erect a court-house and jail, and provide for expenses of the same," passed May 21, 1872, to provide for the disposition of the court-house site therein mentioned, and for the payment of the bonds issued by the commissioners therein named, and the expenses of such commissioners.
213. (Assembly, 42.) An act to provide for the construction and improvement of the road from Piseco lake to Claffin's tannery, in the county of Hamilton.
214. (Assembly, 46.) An act to provide for heating and ventilating the Assembly chamber.
215. An act to amend the charter of The National Academy of Design.
216. (Assembly, 119.) An act to repeal "An act to amend chapter 279 of the Laws of 1862, entitled 'An act for the better improvement of highways at Rockland lake and vicinity,' passed April 17, 1862," passed April 29, 1863.
217. (Assembly, 122.) An act to amend the general highway laws of the State of New York.
218. An act to authorize the North Shore Staten Island Ferry Company to reduce the number of its directors.

G. O.

219. An act for the relief of the Empire Drawing-room Car Company.
220. An act to authorize the Rochester, Nunda and Pennsylvania Railroad Company to construct and operate two branches of its railroad, from a point at or near Angelica, in the county of Allegany, one branch running to a point at or near Scott's Corners, in the town of Hinsdale, Cattaraugus county, and the other to a point on the north line of the state of Pennsylvania, at or near Shongo, in the town of Willing, county of Allegany.
221. An act to authorize the Second Avenue Railroad Company in the city of New York to extend their tracks and operate the same.
222. An act to extend the time for the collection of taxes in the city of Oswego.
223. An act to authorize the city of Utica to borrow money, and issue its corporate bonds therefor, for the purchase of a site and erection of a school district library building, and other city purposes.
224. An act to amend an act entitled "An act for the incorporation of villages," passed April 20, 1870.
225. An act in relation to filing canal claims against the State in the office of the canal appraisers.
226. An act to amend an act entitled "An act relative to contracts for advertisements in newspapers published on Sunday," passed April 25th, 1871.
227. An act to provide for the examination, trial and disposal of deaf and dumb persons accused of crime.
228. An act to provide for the support of the poor in the county of Jefferson.
229. An act in relation to the support of the poor in the county of Niagara.
230. An act to incorporate the New York Accommodation Company.
231. An act to limit the time in which consent for bonding towns, cities and villages, for any purpose, may be proven, and shall be held valid.
232. An act to incorporate The People's Water Transit Company.

G. O.

233. An act to authorize the Binghamton, Dushore and Williamsport Railroad Company to lay a railroad track on the tow-path of that part of the Chenango canal extension which lies south of the Susquehanna river.
234. (Assembly, 126.) An act to amend an act entitled "An act to incorporate the Riverhead Savings Bank," passed April 27, 1872.
235. An act to amend the charter of the Mechanics' Savings Bank of Rochester.
236. (Assembly, 125.) An act to amend an act entitled "An act to incorporate the Rockland Savings Bank," passed April 14, 1871.
237. An act to amend the charter of The Western New York Life Insurance Company.
238. An act to authorize the town of Southold, in the county of Suffolk, to appropriate money from the treasury, and to raise money by tax, if necessary, for the purchase of a site, and for the erection thereon of a town hall.
239. An act to secure greater certainty and uniformity in the collection and payment of state taxes.

STATE OF NEW YORK.

No. 49.

IN SENATE,

March 6, 1873.

PREAMBLE AND RESOLUTIONS

RELATIVE TO THE SALARY OF THE PRESIDENT OF THE UNITED STATES AND MEMBERS OF CON- GRESS.

Mr. LORD offered the following preamble and resolutions, which were laid on the table and ordered printed:

Whereas, The late Congress, in the last hour of its session, passed a law increasing the salary of the President from \$25,000 to \$50,000 a year; and the salaries of members of Congress from \$5,000 to \$7,500 a year, and made it applicable to their term of two years which had just expired, thereby enabling each member to take from the treasury the sum of \$5,000 in addition to the salary provided by law, under which their services were rendered; therefore,

Resolved (if the Assembly concur), That this Legislature, in the name of the people of the whole State, denounce the said act as a corrupt outrage upon the rights of the people now overburdened with grinding and oppressive taxation, a gross abuse of public trust, and a violation of decency and integrity.

Resolved, That our Representatives in Congress be and they are hereby requested, and our Senators instructed, to use their best efforts to procure the prompt repeal of said law at the first opportunity that may be offered.

STATE OF NEW YORK.

No. 50.

IN SENATE,

March 7, 1873.

REPLY

OF THE CLERK OF THE COURT OF OYER AND TERMINER, AND CLERK OF THE COURT OF GENERAL SESSIONS FOR THE CITY AND COUNTY OF NEW YORK, IN COMPLIANCE WITH A RESOLUTION OF THE SENATE OF FEBRUARY 21, 1873.

NEW YORK, *March 6th*, 1873.

The undersigned, clerk of the Court of Oyer and Terminer, and clerk of the Court of General Sessions of the Peace, in and for the city and county of New York, in compliance with a resolution of the Senate on the 21st of February, 1873, respectfully submits the following statement:

JOHN SPARK.

COURT OF OYER AND TERMINER.

During the years 1869, 1870, 1871 and 1872, there were, as appears from the minutes, 320 convictions of all offenses, of which Judges Cardoza and Brady postponed sentences in the following cases, with the concurrence of the district attorney, viz.:

Date.	Name of Defendant.	Offense.	Justice.
June 11, 1869.....	Lanegan, Michael.....	Attempt at burglary, 8d degree	Cardozo
June 22, 1869.....	O'Connor, Florence.....	" " " "	"
July 12, 1869.....	Sheppard, William	" " " "	"
December 7, 1870.....	Adams, Thomas	Attempt at grand larceny	"
December 7, 1870.....	Blohn, George	Burglary, 8d degree.....	"
December 14, 1870.....	Martin, Gustav	Attempt at burglary, 8d degree	"
December 19, 1870.....	Jones, Richard.....	" " " "	"
December 19, 1870.....	Johnson, Thomas.....	" " " "	"
December 21, 1870.....	Stolf, Meyer.....	" " " "	"
December 22, 1870.....	Wilson, John	Attempt at grand larceny	"
May 8, 1871.....	McGunn, Michael.....	Grand larceny	"
May 10, 1871.....	Wissing, Mary.....	Attempt at grand larceny	"
May 26, 1871.....	Cartland, Frederick.....	" " " "	"
September 20, 1872.....	Teiney, Martin	Attempt at burglary, 8d degree	Brady.
October 22, 1872.....	Douglas, James G.....	Attempt at grand larceny	"

Justice Cardozo..... 13
Justice Brady..... 2

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During the year 1873 there were, as appears from the minutes, 241 convictions of all offenses, of which the Recorder postponed sentences, with the concurrence of the district attorney in six cases, as follows, viz.: (January and February terms, 1873.)

Date.	Name of Defendant.	Offense.	Justice.
January 24.....	Thompson, John	Attempt at grand larceny.....	Hackett.
January 27.....	Clayburgh, Edward	" "	"
January 28.....	Chitty, William.....	" "	"
January 28.. ...	Jacobs, Isaac	" "	"
January 28.....	Watson, Charles	" "	"
February 21.....	McCabe, Peter.....	" "	"

COURT OF GENERAL SESSIONS OF THE PEACE.

During the year 1869 there were, as appears from the minutes, 734 convictions of all offenses, of which the recorder postponed sentences, with the concurrence of the district attorney, in thirteen cases, as follows, viz.:

Date.	Name of Defendant.	Offense.	Justice.
1869.			
February 11....	Kinney, James.....	Rape (married complainant)....	Hackett.
February 18....	Lynch, Andrew.....	Petit larceny from the person	"
March 31....	Gibson Mary.....	False pretenses.....	"
May 27....	Tevamly, William	" "	"
June 17....	Kuhlman, Charles	Attempt at grand larceny.....	"
August 2....	Murphy, Peter	Attempt at burglary, 8d degree	"
September 9....	Kelly, Michael	Attempt at grand larceny.....	"
September 16....	Watson, James	Forgery, 4th degree	"
November 12....	Flanagan, Thomas J.	Attempt at grand larceny... ..	"
December 14....	Halleck, Frederick	" "	"
December 14 ..	Roullett, George.....	" "	"
December 23....	Hoffman, Agnes.....	" "	"
.....	Von Gicdera, Heinrich.....	" "	"

During the year 1870 there were, as appears from the minutes, 768 convictions of all offenses, of which the recorder postponed sentences, with the concurrence of the district attorney in thirty cases, as follows:

Date.	Name of Defendant.	Offense.	Justice.
1870.			
January 11....	Berry, Ann.....	Attempt at grand larceny	Hackett.
January 14....	Hamilton, Walter.....	Forgery, fourth degree.....	"
January 26....	Drawbridge, James T.	Attempt at grand larceny.	"
February 10....	Nelson, John	Forgery, fourth degree.....	"
February 15....	McKnight, Elias	Attempt at burglary, third degree.....	"
February 23....	Reynolds, Francis.....	Assault with intent to do bodily harm,	"
April 19....	McIntosh, John... ..	Attempt at petit larceny from person,	"
April 25....	Stanton, Michael.....	Attempt at grand larceny.....	"
May 13....	Shaler, Frank.....	" " "	"
May 13....	Winch, Chas. F.....	" " "	"
May 18....	Hennett, Julius	" " "	"
May —....	Kennedy, Mark J.....	Attempt at burglary, third degree.....	"
May 26....	McKenna, Wm. A.....	Attempt at arson, third degree	"

Date.	Name of Defendant.	Offense.	Justice.
1870.			
June 1....	Miller, Edward.....	Attempt at grand larceny.....	Hackett.
June 7....	Anchor, Wm.....	Attempt at burglary, third degree.....	"
June 16....	Hanrahan, John.....	Attempt at grand larceny.....	"
June 20....	Blakeley, Wm. J.....	" " " ".....	"
June 27....	McNamara, Catherine.....	Attempt to aid prisoners' escape.....	"
July 12....	Carrier, John.....	Attempt to do bodily harm.....	"
September 23....	McDonald, Thomas.....	Attempt at grand larceny.....	"
October 6....	Darrelle, Edward.....	" " " ".....	"
October 10....	McKenna, James.....	Petit larceny from person.....	"
October 12....	Sivare, Charles.....	Attempt at grand larceny.....	"
October 12....	Gennert, Gottlieb.....	" " " ".....	"
October 18....	Donovan, John.....	Attempt at burglary, third degree.....	"
October 18....	Keating, Robert.....	Attempt at grand larceny.....	"
October 20....	Fay, Logan.....	" " " ".....	"
December 16....	Soane, Emil.....	Assault with dangerous weapon.....	"
December 19....	Kellar, Geo. Max.....	Attempt at grand larceny.....	"
December 22....	Stevens, Steven.....	Grand larceny (committed suicide in city prison).....	"

During the year 1871 there were, as appears from the minutes, 838 convictions of all offenses, of which the recorder postponed sentences, with the concurrence of the district attorney, in thirty-five cases, as follows, viz.:

Date.	Name of Defendant.	Offense.	Justice.
1871.			
January 27....	Brown, Geo.....	Attempt at grand larceny	Hackett.
February 6....	De Forest, Jennie	" "	"
February 8....	Miller, John.....	Assault to rob	"
February 9....	Gracy, Ann	Attempt at grand larceny	"
February 16....	Lee, Fred'k.....	Assault to do bodily harm	"
February 17....	Littlefield, Chas. E.....	Attempt at grand larceny.....	"
March 3....	Todd, Eugene.....	Attempt at burglary, third degree...	"
March 10....	Sullivan, Geo. A.....	Attempt at grand larceny	"
March 16....	Dickinson, John	Burglary, third degree	"
March 21....	Hill, John	Attempt at grand larceny	"
March 23....	McKenna, Thos	Attempt at burglary, third degree...	"
March 23....	Weber, Wm	Attempt at grand larceny.....	"
April 7....	Fenchell, Geo. A	Attempt at burglary, third degree...	"
April 11....	Byrne, Jas.....	" " " "	"
May 2....	Taylor, Chas.....	" " " "	"
May 8....	McGaffney, Richard.....	" " " "	"
June 7....	McGuire, James	" " " "	"
June 7....	Quinn, Jos.....	Forgery, fourth degree.....	"
June 13....	Kennedy, Jeremiah A	Bigamy	"
June 16....	Ratchford, John.....	Attempt at grand larceny.....	"
June 16....	Stevens, Geo	Grand larceny	"
June 23....	Nolan, Philip	Attempt at grand larceny	"
June 23....	Nephew, Oscar	" " " "	"
July 10....	Dowling, John.....	Petty larceny, person.....	"
July 10....	Mills, Mary.....	Attempt at grand larceny.....	"
July 12....	Strauss, Emanuel.....	Petit larceny from person.....	"
July 17....	Rodgers, Jas.....	Attempt at grand larceny	"
July —....	Gality, Geo	Attempt at grand larceny	"
August 9....	Sullivan, Cornelius	Attempt at burglary, third degree ..	"
August 9....	Smith, Wm.....	" " " "	"
September 5....	Wilson, Lemuel	Attempt at grand larceny.....	"
September 12....	Kelly, John.....	Bigamy	"
October 16....	McLain, Louis.....	Forgery, fourth degree.....	"
December 13....	Brady, Jos. T.....	Assault	"
January —....	Dunn, John.....	Attempt at grand larceny	"

During the year 1872 there were, as appears from the minutes, 923 convictions of all offenses, of which the Recorder postponed sentences, with the concurrence of the district attorney, in thirty-nine cases, as follows, viz.:

Date.	Name of Defendant.	Offense.	Justice.
1872.			
January 4....	Stinson, John	Attempt at burglary, third degree ..	Hackett.
January 12....	Edwards, George	Attempt at grand larceny	"
January 12....	Lawrence, John B	"	"
January 17....	O'Neill, Chas	Assault with intent to commit rape,	"
March 4....	Blendel, Fred'k. ..	Attempt at grand larceny	"
March 7....	Walker, Jas	False pretenses	"
March 7....	Woods, Chas	Attempt at burglary, third degree. .	"
March 7....	Wilson, John	"	"
March 11....	Shoals, John P	Attempt at grand larceny	"
March 16....	Duffy, James	Attempt at burglary, third degree...	"
April 30....	Smith, John	Attempt at petit larceny, person....	"
May 7....	Tisch, Herman	Attempt at grand larceny	"
May 10....	Snedicor, Fred'k.	Forgery, fourth degree	"
May 14....	Peckwell, Francis	Attempt at grand larceny	"
May 20....	Johnson, Tunis	Forgery, fourth degree	"
May 20....	Sexton, Francis	Assault with dangerous weapon	"
May 20....	Woods, Henry	Attempt at grand larceny	"
June 23....	Frawley, Pat'k.	"	"
June 23....	Swift, Frank	Attempt at false pretenses	"
June 23....	Karschow, Chas	Attempt at grand larceny	"
July 10....	Briggs, John	"	"
July 10....	Rimbach, Chas	"	"
July 10....	Harrison, And. P	Attempt at burglary, third degree...	"
July 12....	Martin, John, Sr	Attempt at grand larceny	"
July 12....	Martin, John, Jr.	"	"
September 11....	Brown, Chas. H.	"	"
September 20....	Carney, Michael	"	"
September —....	Hackett, Thos	Assault to do bodily harm	"
October 16....	Hamilton, John	Attempt at grand larceny.. ..	"
October 22....	Riley, James	"	"
October —....	Doyle, Peter	Attempt at burglary, third degree...	"
November 27....	Lee, Charles	Attempt at grand larceny	"
December 2....	Bryant, Henry S	Attempt at false pretenses	"
December 8....	Preston, John L	Attempt at grand larceny	"
December 16....	Connolly, Pat'k.	Assault with dangerous weapon	"
December 19....	Dunshee, Wm. P	Attempt at forgery, third degree...	"
December 20....	Dish, Chas	Attempt at grand larceny	"
December 26....	Kelly, Cath	Assault to do bodily harm	"
December 26....	Vandewater, John	Attempt at burglary, third degree...	"

During the year 1869 there were, as appears from the minutes, 734 convictions of all offenses, of which the city judge postponed sentences, with the concurrence of the district attorney, in thirty-nine cases, as follows, viz.:

Date.	Name of Defendant.	Offense.	Justice.
1869.			
January 11....	O'Neill, Kate ..	Attempt at grand larceny	Bedford.
January 13....	Gilmartin, And	Attempt at burglary, 3d degree	"
January 21....	Haight, Wm. K	Attempt at grand larceny	"
January 27....	McGrath, Patrick	"	"
January —....	Dixon, Alice	"	"
January —....	Palmer, Charles	"	"
February 18....	Newell, John	Assault, to do bodily harm	"
March 2....	Spencer, John	False pretenses	"
March 2....	McNamara, John	Attempt at grand larceny	"
March 2....	McQuade, John	"	"
March 4....	Isaacs, David	"	"
March 4....	Chambers, Wm. H	False pretenses	"
March 4....	Gifford, Henry ..	Attempt at grand larceny	"
March 19....	Smith, Ezra	False pretenses	"

Date.	Name of Defendant.	Offense.	Justice.
1869.			
March 23....	Boteller, Walter B	Attempt at grand larceny.	Bedford.
April 27. ..	Latimer, Charles.....	Receiving stolen goods	"
April 27....	White, Louis.....	Attempt at burglary, 3d degree	"
April 28....	Simms, Thomas.....	Receiving stolen goods	"
May 4.....	Rogers, Cath.....	Attempt at grand larceny.	"
May 10....	Thompson, James	" "	"
May 12....	Green, John	" "	"
May 12....	Creighton, Louis N	False pretenses.....	"
May 20....	Stevens, Wm	Attempt at grand larceny.....	"
May 31....	Kidd, Thomas	Attempt at burglary, 3d degree	"
June 22....	O'Connor, John E	Attempt at grand larceny.....	"
August 2....	Roberts, John	" "	"
August 3....	McCudden, Stephen.....	" "	"
September 16....	Gillen, James.....	" "	"
September —....	Dennison, Thos. K....	" "	"
October 18....	Tyrrell, Mary Ann	" "	"
October 18....	Green, Alonzo	" "	"
October 19....	Dunn, Drake R..	Forgery, 4th degree.....	"
October 20....	Burns, Frank	Attempt at burglary, 3d degree	"
November 12....	Campbell, Wm.....	False pretenses.....	"
November 16....	Lowe, Charles	"	"
November 19....	Chamberlain, Benj. F	Attempt at grand larceny.....	"
December 3....	McGuire, Francis	Assault, to do bodily harm.....	"
December 23	Just, Henry.....	Attempt at grand larceny.....	"
December 24....	Miller, George	" "	"

During the year 1870 there were, as appears from the minutes, 768 convictions of all offenses, of which the city judge postponed sentences, with the concurrence of the district attorney, in eighty cases, as follows, viz.:

Date.	Name of Defendant.	Offense.	Justice.
1870.			
January 6....	Kelcher, Wm..	Attempt at burglary, third degree	Bedford.
January 10....	Storms, Isaac	Attempt at grand larceny.....	"
January 10....	Sullivan, Thomas.....	" "	"
January 11....	Blake, Wm. H.....	At'mpt bodily harm, dangerous w'pon,	"
January 12....	Robinson, John H.....	Attempt at grand larceny.....	"
January 14....	O'Connor, Thos.....	" "	"
January 14....	Holt, John.....	Assault with dangerous weapon.....	"
January 19....	Callary, Thos.....	Attempt at burglary, third degree....	"
January 19....	Dalberg, Albert	Attempt at grand larceny.....	"
January —....	McKenna, Catherine.....	" "	"
January —....	Russell, Charles... ..	Attempt at burglary, third degree.....	"
January —....	Rodgers, James.....	Attempt at grand larceny... ..	"
January —....	McGrath, Dennis	Attempt at burglary, third degree.....	"
January —....	McGrath, Michael.....	" "	"
February 18....	Zeiner, Henry.....	Attempt at grand larceny.....	"
February 25....	Clark, James.....	" "	"
March 1....	Smith, John	" "	"
March 5....	Morrow, Michael.....	Attempt at burglary, third dereee.....	"
March 5....	Mallory, Benjamin.....	Assault, bodily harm	"
March 9....	Callahan, Peter	Attempt at grand larceny.....	"
March 11....	Nazro, Chas.....	Attempt at burglary, third degree.....	"
March 24....	Johnston, Robert	Attempt at grand larceny.....	"
April 13....	Greety, Julius	" "	"
April 14....	Dilleith, Louis	Attempt at burglary, third degree. ...	"
April 18....	Callahan, Thos... ..	" " " "	"
April 20....	Dunn, Thos.....	" " " "	"
April 20....	Gorman, Thos.....	Attempt at grand larceny.....	"
April 20....	Gorman, Peter.....	Attempt at burglary, third degree.....	"
April 22....	Henderson, Isaac	" " " "	"
June 16....	Gaffney, Wm.....	" " " "	"
June 16....	Golding, James	" " " "	"
July 11....	Tedd, Frank G.	Attempt at grand larceny.....	"
August 1....	Rollins, Geo. W.....	Forgery, fourth degree	"
August 1	Rosenbaum, James	Attempt at grand larceny.....	"
August 2....	Bowers, John M.....	Attempt at petit larceny from person,	"
August 4....	Pallister, Lawrence.....	Attempt at grand larceny.....	"

Date.	Name of Defendant.	Offense.	Justice.
1870.			
August 19....	Pollock, Gustave.....	Attempt at grand larceny.	Bedford.
September 1....	Irving, Henry P.....	" " "	"
September 4....	Scrobl, Wm.....	" " "	"
September 9....	Harrison, Kitty	" " "	"
September 14....	Smith, Lucy	" " "	"
September 15....	Lahey, Johanna.....	" " "	"
September 15....	Dolan, John.....	" " "	"
September 21....	Horton, Wm.....	Attempt at petit larceny from person,	"
September 21....	McCabe, Susanna	Attempt at grand larceny.....	"
September 21....	Savage, John	Attempt at burglary, third degree.....	"
September 22....	Leonard, Chas.....	Attempt at grand larceny.....	"
September 22....	Everson, Frederick.....	Attempt at burglary, third degree.....	"
September 22....	Fay, John.....	Attempt at grand larceny.....	"
September 23....	Gray, Richard.....	Attempt at burglary, third degree.....	"
September 23....	Reycraft, John	Attempt at grand larceny.....	"
September 23....	McDermott, Thomas.....	" " "	"
September 23....	Martin, Henry	" " "	"
September 26....	Cooper, Edward.....	False pretenses.....	"
September 28....	Weiner, Sol.....	" " "	"
September 28....	Ryan, Ann.....	Attempt at grand larceny.....	"
October 19....	Carmichael, Daniel.....	" " "	"
October 19....	Campbell, James.....	" " "	"
October 20....	Westhapple, Franz.....	" " "	"
October 21....	Bradley, James.....	" " "	"
November 7....	Jacobs, Henry	Assault, bodily harm.....	"
November 11....	Daly, Thomas	Attempt at burglary, third degree.....	"
November 11....	Moran, Dennis.....	Attempt at grand larceny.....	"
November 11....	Lee, Thomas.....	Attempt at burglary, third degree.....	"
November 11....	Lang, John	Attempt at grand larceny.....	"
November 11....	Lawrence, Comstock W.....	Forgery, fourth degree.....	"
November 14....	Miller, Francis.....	Attempt at grand larceny.....	"
November 14....	Moore, John.....	" " "	"
November 17....	McDonald, John	Attempt at burglary, third degree.....	"
November 18....	Denniston, Austin	" " "	"
November 21....	Benton, Jos.....	Attempt at grand larceny.....	"
November 22....	Ross, Henry	" " "	"
November 29....	Schnor, Albert.....	" " "	"
November 29....	Byrne, Garrett H.....	Attempt at burglary, third degree.....	"
December 5....	Quirane, James.....	Assault, bodily harm	"
December 22....	Logan, Walter	Attempt at grand larceny.....	"
December —....	Livingston, George	Attempt at burglary, third degree.....	"
December 28....	Page, Jos. F.....	Attempt at grand larceny.....	"
December —....	Young, James.....	" " "	"
December —....	Youell, James B..	" " "	"

During the year 1871 there were, as appears from the minutes, 838 convictions of all offenses, of which the city judge postponed sentences, with the concurrence of the district attorney, in fifty-six cases, as follows, viz. :

Date.	Name of Defendant.	Offense.	Justice.
1871.			
January 6....	Watson, George	Attempt at grand larceny.....	Bedford.
January 12....	Burns, William	Attempt at burglary, 3d degree	"
January 18....	White, Michael	Assault with dangerous weapon ..	"
January 18....	Webb, Robert H.	Attempt at grand larceny ..	"
January 18....	Wilson, James M.....	" " "	"
January 23....	Norton, Francis.....	Attempt at burglary, 3d degree	"
January 24....	Smith, William	" " "	"
February 8....	O'Donnell, John	Attempt at grand larceny.....	"
February 24....	Lynch, Dennis	" " "	"
February 27....	Wertzman, Arthur.....	Assault with dangerous weapon	"
February 27....	Flynn, John	Attempt at burglary, 3d degree	"
February 27....	Fleming, Richard.....	Attempt at grand larceny.....	"
February 28....	Ryan, Patrick.....	Attempt at burglary, 3d degree	"
February 28....	Ryan, James.....	" " "	"
February 28....	Ray, Ida	Attempt at grand larceny.....	"

Date.	Name of Defendant.	Offense.	Justice.
1871.			
March 10	Simon, Adam	Attempt at grand larceny	Bedford
March 16	Isaacs, Edward	" "	"
March 16	Donohoe, William	" "	"
March 30	Brinckerhoof, Isaac	" "	"
March 30	McCoy, John	Attempt at petit larceny from person,	"
March 23	Williams, Emma	Assault with dangerous weapon	"
March 27	Cornell, Ellen	Attempt at grand larceny	"
March 27	Smith, James	Attempt at burglary, 3d degree	"
April 13	Lloyd, John	Forgery, 4th degree	"
April 21	Schultz, John W.	Attempt at grand larceny	"
May 5	Leebury, Peter	Forgery, 4th degree	"
May 22	Hughes, Henry W.	Attempt at grand larceny	"
May 22	Ryan, Joseph	Attempt at burglary, 3d degree	"
May 22	Rafferty, William	" "	"
May 22	Randell, James	" "	"
May 28	Stevenson, John	Attempt at grand larceny	"
May 28	Sullivan, Daniel	Attempt at burglary, 3d degree	"
June 13	Carney, James	" "	"
June 30	Cartel, Edward	" "	"
July 5	O'Brien, Edward	" "	"
August 9	Augerot, Julius	Attempt at grand larceny	"
August 29	Hoadley, Clara	" "	"
September 5	Wilson, William	" "	"
September 15	Finzel, Herman	" "	"
September 20	Healey, William	" "	"
September 22	Dooley, Richard	Attempt at grand larceny from person,	"
September 27	Smith, Warren E.	Attempt at grand larceny	"
September 29	Carlin, William	Seduction (married complainant)	"
October 16	McCord, John	Attempt at burglary, 3d degree	"
October 19	O'Brien, William	Attempt at grand larceny	"
October 30	Murray, Peter	" "	"
November 16	Farrell, Frank	Attempt at burglary, 3d degree	"
November 16	Rowlin, Thomas	Assault to do bodily harm	"
November 21	Campbell, Michael	Attempt at grand larceny	"
November 21	Hutchinson, Andrew	Petit larceny from person	"
November 28	Salter, John T.	Attempt at grand larceny	"
December 6	Dieffenbach, Henry	Attempt at petit larceny from person,	"
December 6	Schmidt, Henry	Attempt at grand larceny	"
December 12	Peterson, John	Attempt at petit larceny from person,	"
December 22	Woods, Charles	Assault with dangerous weapon	"
December —	Phillips, Cecilia	Attempt at grand larceny	"

During the year 1872 there were, as appears from the minutes, 923 convictions of all offenses, of which the city judge postponed sentences, with the concurrence of the district attorney, in sixty-three cases, as follows, viz. :

Date.	Name of Defendant.	Offense.	Justice
1872.			
January 5	Jonnsnson, Joseph	Attempt at grand larceny	Bedford
January 8	Bowers, Hy	" "	"
January 10	Reeseque, John	False pretenses	"
January 10	Riley, Chas	Attempt at grand larceny	"
January 10	Healey, Wm	" "	"
January 19	Maloney, Daniel	Attempt at burglary, 3d degree	"
January —	McQueen, Thomas	" "	"
January 27	Williams, Jacob	" "	"
March 1	Farley, Terrence	Bigamy	"
March 27	Calmer, Chas	Attempt at burglary, 3d degree	"
March 29	Vider, Esther	Attempt at grand larceny	"
April 1	Smith, Patrick	" "	"
April 1	Chifford, Thomas	" "	"
April 1	Brown, John	" "	"
April 5	Wilson, Fernando	" "	"
April 8	Doris, Libby	Grand larceny	"
April 9	Siegel, Adolph	Attempt at grand larceny	"
April 9	Kane, Wm. H.	" "	"
April 12	Jones, Albert K.	" "	"
April 18	Carroll, James	" "	"

Date.	Name of Defendant.	Offense.	Justice.
1872.			
April 19....	Wilson, John	Attempt at grand larceny.....	Bedford.
April 29....	Johnson, Anna.....	" "	"
April 29....	Murphy, Michael.....	" "	"
April 30....	Schmidt, John	" "	"
June 8....	Hermon, Chas. E.....	Forgery, 4th degree.....	"
June 4. ..	McMahon, Phil. A	Assault to do bodily harm	"
June 4....	Creighton, Wm	Petit larceny from person.....	"
June 10....	Larble, Adolph.....	Assault to do bodily harm	"
June 14....	Holzman, John	Receiving stolen goods	"
June 14. ..	Hart, Geo. W	Attempt at grand larceny.....	"
June 17 ..	Butler, Wm.....	" "	"
June 17....	Dalton, Patrick	Petit larceny from person.....	"
July 2....	Finn, Michael.....	Ass't to do bodily harm, dang's weap.	"
July 2 ..	Gormond, Thos	Attempt at burglary, 3d degree.....	"
August 3....	Gray, Chas.	Attempt at grand larceny	"
August 3....	Griffin, John	Forgery, 4th degree.....	"
August 5....	Kaufman, Levi.....	Assault to do bodily harm	"
August 6....	Kelly, Thomas.....	Attempt at burglary, 3d degree....	"
August 8 ..	Shannon, Jas.....	" "	"
August 15....	Collary, Thos	Attempt at grand larceny.....	"
August 15....	Cohen, Anna.....	" "	"
August 15. ..	Burgess, Wm	" "	"
August 15....	Troman, Bertha.....	" "	"
August 15....	Davis, Ellen	" "	"
August 15....	Downing, Austin A	" "	"
August 16....	Willis, Augustus	" "	"
August 16....	Rubel, Chas.....	Attempt at burglary, 3d degree... ..	"
September 8....	Schmidt, Frederick	Attempt at grand larceny.....	"
September 13 ..	O'Brien, Michael	Petit larceny from person.....	"
September 20....	Jackson, Sam'l S.....	Attempt at burglary, 3d degree.....	"
September 20... ..	Jasado, Leon.....	Attempt at grand larceny.....	"
September 20....	Scanlan, Peter	Attempt at burglary, 3d degree.....	"
September —....	Gannon, John	Attempt at grand larceny.....	"
October 18....	Jones, John	Attempt at burglary, 3d degree.....	"
October 18....	Melville, Jas.....	" "	"
October 19....	Fremont, Wm	Attempt at grand larceny.....	"
October 19....	Farrell, Henry.....	" "	"
November 11....	Lowenthal, Max	Forgery, 4th degree.....	"
November 11....	Weldon, Pat	Attempt at burglary, 3d degree.....	"
November 14....	Mayfield, Wm.....	Attempt at grand larceny.....	"
November 22....	Moore, Theo.....	" "	"
November 26....	Jacobs, Ephraim.....	" "	"
November 26....	Rodgers, Tennie	" "	"

STATE OF NEW YORK.

No. 51.

IN SENATE,

March 11, 1873.

LIST OF GENERAL ORDERS.

G.O.

- 240. An act in regard to highways and bridges in the towns of Le Ray and Rutland, in the county of Jefferson.
- 241. (Assembly, 135.) An act in relation to the Washington park in the city of Albany.
- 242. (Assembly, 63.) An act to amend title seven, entitled "Of the board of education," of an act entitled "An act revising the charter of the city of Oswego," passed April 16th, 1860.
- 243. An act to amend an act entitled "An act to amend an act entitled 'An act to authorize the construction of a railway and tracks in the towns of West Farms and Morrisania,' passed May 2d, 1863," passed April 20th, 1871.
- 244. An act to incorporate the Mount Prospect and Carroll-street Railroad Company.
- 245. (Assembly, 153.) An act to amend "An act to incorporate the Poughkeepsie fire department of the city of Poughkeepsie," passed March 29th, 1866.
- 246. (Assembly, 133.) An act to amend an act entitled "An act to amend and consolidate the several acts relative to the city of Schenectady," passed April 21st, 1862, and the several acts amendatory thereof.
- 247. An act to provide for the audit and payment of the claim of the estate of J. D. Auld, deceased, against the city and county of New York.

G. O.

248. An act to dissolve the Cayuga Midland Railroad Company.
249. An act to amend an act entitled "An act to amend the act entitled 'An act to amend an act entitled "An act to revise, amend and consolidate the several acts relating to the village of Whitesborough," passed February 12th, 1859.'"
250. (Assembly, 96.) An act to amend an act entitled "An act in relation to the village of Chatham, in Columbia county," passed April 27th, 1870.
251. An act to establish the municipal court of the city of New York, and to define its powers and jurisdiction, and to regulate the practice, pleadings and proceedings therein.
252. (Assembly, 56.) An act to release the interest of the State of New York in certain real estate to Thomas Shedd, John Shedd and William Shedd.
253. An act to release the interest of the people of the State of New York in and to certain real estate to Henry Siedenburg.
254. An act to authorize the sale of certain lands belonging to the State.
255. An act to amend an act entitled "An act to provide for furnishing two statues of eminent deceased citizens of this State, to be placed in the capitol [at Washington, in compliance with the invitation of the President of the United States." .
256. An act to provide for the payment, by the county of New York, of arrearages of interest due the State by said county, on the State tax of 1870. .
257. An act to amend "An act in relation to the calendar of the Commission of Appeals, authorizing the transfer of causes from the calendar of the Court of Appeals and the disposition of causes on the calendar of the Commission of Appeals," passed February 7th, 1873.
258. An act to extend the time for the collection of taxes in the towns of North Hempstead, Oyster Bay and Jamaica, in the county of Queens.
259. (Assembly, 91.) An act to confer additional powers upon the New York and Canada Railroad Company.

G. O.

260. An act to authorize the Third Avenue Railroad Company of the city of New York to extend their tracks and to operate the same.
261. An act to amend the charter of the village of Adams.
262. An act to authorize the village of Dansville to create a debt for the purpose of bringing water into said village for protection against fires, and to amend the charter of said village.
263. (Assembly, 98.) An act to incorporate the Nyack Water-works Company.
264. An act in relation to the Seneca Indians residing on the Cattaraugus and Allegany reservations.
265. An act declaring the right of the Onondaga and Cayuga Indians residing on the Cattaraugus and Allegany reservations to vote and hold office under the government of the Seneca nation of Indians.
266. An act to incorporate the trustees of Hempstead Lodge No. 141 of the Independent Order of Odd Fellows of the State of New York.
267. An act to amend chapter 887 of the Laws of 1867, relative to husband and wife being a witness for or against the other, or on behalf of any party in certain cases.
268. An act to incorporate the Lotus Club.
269. An act to amend the charter of the Buffalo Fine Arts Academy.
270. An act entitled "An act to amend chapter 643 of the Laws of 1872, in regard to school district No. 1, in the town of Clarence.
271. An act to amend chapter 135 of the Laws of 1842, entitled "An act to organize the State Lunatic Asylum, and more effectually to provide for the care, maintenance and recovery of the insane," passed April 7, 1842.
272. (Assembly, 77.) An act to incorporate the Mechanics' Savings Bank of Cohoes, Albany county, New York.
273. (Assembly, 5.) An act to amend an act entitled "An act to annex a part of the town of Clermont to the town of Germantown, in the county of Columbia," passed March 2, 1858.

G. O.

274. (Assembly, 104.) An act to reduce the number comprising the board of education of union school district No. 2 of the town of Ellington, county of Chautanqua.
275. (Assembly, 192.) An act to provide for the payment of tuition in Cortland academy of academic scholars residing in the village of Homer.
276. (Assembly, 103.) An act to authorize the sale and conveyance of a portion of the real estate belonging to school district number one of the town of Lansingburgh.

STATE OF NEW YORK.

No. 52.

IN SENATE,

April 4, 1873.

ANNUAL REPORT

OF THE TREASURER OF THE SAILORS' SNUG HARBOR,
IN THE CITY OF NEW YORK.

STATE OF NEW YORK:

EXECUTIVE CHAMBER,
ALBANY, *April 3, 1873.* }

To the Legislature:

I transmit herewith for the use of the Legislature the annual report of the treasurer of the Sailors' Snug Harbor, in the city of New York.

JOHN A. DIX.

REPORT.

To the Honorable the Legislature of the State of New York:

The annual report of the treasurer of the Sailors' Snug Harbor, in the city of New York, showing the receipts and disbursements on account of the trust from the 31st day of December, 1871, to the 31st day of December, 1872, inclusive.

Showing also the present state of the funds and an estimate of the income for the year 1873.

Receipts.

Balance of cash on hand December 31, 1871.....	\$36,496 45
Cash received from Wm. T. Garner, for one year's rent, to April 1, 1872, of thirty-five acres of land on Staten Island, leased to C. C. Taber by the trustees,	200 00
Cash from the Union Trust Company of New York, for interest at four per cent on deposits for one year, to June 30, 1872.....	986 56
Cash from Thos. Melville, governor, for sundries sold by him on account of the trustees in 1872.....	496 50
Cash from same, for moneys, etc., found among the effects of deceased inmates.....	157 75
Cash from Dr. S. V. R. Bogert, resident physician, for sundries sold him by the governor on account of the trustees in 1872.....	194 11
Cash from Rev. Charles J. Jones, resident chaplain, for sundries sold him by the governor on account of the trustees in 1872.....	130 32
Cash from J. V. L. Rainhard, per Thos. Melville, governor, for six months' rent, to May 1, 1872, of the old frame parsonage on Staten Island.....	350 00
Cash from Robert B. Minturn, per Thos. Melville, governor, for one year's rent of lot 50x30 feet, on premises of the trustees at Staten Island, leased for a boat-house.....	50 00
Cash from the estate of Mrs. Margaret Morris, per D. H. Olmstead, trustee, for one year's rent of houses and lots Nos. 8 and 10 Clinton place.....	1,800 00
Cash for return premium on insurance of the old bake-house, occupation being changed to dwelling.....	11 20
Cash for interest paid by lessees on overdue ground rents in 1872.....	61 67
Cash for ground rents on lots in First ward, in full for one year, from Nov. 1, 1871, to Nov. 1, 1872.....	3,050 00
Cash for ground rents on lots in Fifteenth ward, on account and in full for one year, from Nov. 1, 1870, to Nov. 1, 1871.....	\$287 50
And on account for one year, from Nov. 1, 1871, to Nov. 1, 1872.....	132,002 50
	<hr/> 132,290 00
	<hr/> <hr/> \$176,274 56

Disbursements.

Cash paid for supplies.....	\$42,236 99
paid for repairs and improvements.....	24,244 89
paid for taxes and insurance, viz.:	
taxes.....	\$10,721 43
insurance.....	1,566 02
	<hr/> 12,287 45

Cash paid for house wages	\$8,169 50
paid for furniture	951 01
paid for salaries.....	12,499 98
paid for contingencies.....	2,480 74
paid for farm.....	4,767 16
Balance cash in deposit on Dec. 31, 1872, to the credit of the trustees in Union Trust Company of New York,	68,636 84
	<hr/>
	\$176,274 56

Funds.

Dwelling-houses Nos. 8 and 10 Clinton place, in this city, at their cost	\$17,774 12
Cash in deposit to credit of the trustees in the Union Trust Company of New York, being the balance of account on Dec. 31, 1872.....	68,636 84
	<hr/>
	\$86,410 96

Estimated Income for the Year 1873.

Rent of houses and lots Nos. 8 and 10 Clinton place, for one year.....	\$1,800 00
Rent of old frame parsonage on Staten Island, for eight months.....	533 00
Rent of thirty-five acres of land on Staten Island, for one year.....	200 00
Rent of boat-house, lot 50x30 feet, on Staten Island, for one year.....	50 00
Outstanding ground rents on lots Nos. 83, 86 and 137, Ground rents of lots in First ward of this city, for one year, from Nov. 1, 1872, to Nov. 1, 1873.....	1,012 50
Ground rents of lots in the Fifteenth ward for the year 1872, was.....	3,050 00
To which must be added one-half of the increased annual rent of \$47,665 of the forty-two lots, the leases of which will expire on the 1st day of May, 1873...	\$133,015 00
Also one-half of the increased annual rent of \$24,000 of the lease held by Mr. Alex. T. Stewart, of the twenty-three lots, Nos. 228 to 250 inclusive, which by the terms of the lease commences May 1, 1873	23,832 50
	<hr/>
	12,000 00
	<hr/>
	168,847 50

Making the total estimated income for the year 1873, \$175,493 00

THOS. GREENLEAF,
Treasurer.

NEW YORK, December 31, 1872.

The executive committee of the board of trustees of the Sailors' Snug Harbor, in the city of New York, having attended to the duties assigned them pursuant to a standing order of the board, report:

That they have carefully examined the treasurer's accounts from the 1st day of January, 1872, to the 31st day of December, 1872, inclusive; that they have examined the vouchers for the disbursements. They have also examined the securities held by the trustees, and have found the same to be in all respects correct. And that there is a balance of cash in favor of the trustees of sixty-eight thousand six hundred and thirty-six dollars and eighty-four cents (\$68,636.84), and that the same was in deposit to the credit of the trustees in the Union Trust Company of New York.

W. E. DODGE,
JOHN M. FERRIER,
WILLIAM M. PAXTON,

*Executive Committee of the Board of Trustees
of the Sailors' Snug Harbor.*

Dated NEW YORK, *February* 26, 1873.

R E P O R T

ON A

TOPOGRAPHICAL SURVEY

OF THE

Adirondack Wilderness of New York.

By VERPLANCK COLVIN.

ALBANY:
THE ARGUS COMPANY, PRINTERS,
1873.

STATE OF NEW YORK.

No. 53.

IN SENATE,

March 10, 1873.

REPORT

ON A

TOPOGRAPHICAL SURVEY OF THE ADIRONDACK WILDERNESS OF NEW YORK.

To Hon. JOHN C. ROBINSON,

Lieutenant-Governor and President of the Senate :

SIR.—Pursuant to a provision contained in chapter 733 of the Laws of 1872, to aid in completing a topographical survey of the Adirondack Wilderness of New York, I have the honor to submit the accompanying report to the Legislature.

Very respectfully yours,

VERPLANCK COLVIN.

•

V. Colvin, Del.

The Argus Company, Albany

STATION :
ON
BALD PEAK



REPORT.

To the Honorable the Legislature of the State of New York!

Pursuant to a provision contained in chapter 733 of the Laws of 1872, to aid in completing a topographical survey of the Adirondack Wilderness of New York, I have the honor to submit, accompanied with maps, the following

REPORT:

Since the completion of the primary geological survey of New York there has not been even an attempt at an exploration of the whole of the vast forest now known as the Adirondack Wilderness.

For almost all the exact knowledge that we possess of the topography and physical character of the region, we are indebted to Prof. Emmons and those who so ably assisted him. Through them we first learned that Whiteface Mountain, beforetime placed at about two and a half thousand feet above the sea, and, consequently, supposed to be far inferior in altitude to the Catskills, really overtopped, by more than a thousand feet, those more famous and familiar mountains, while, southward, towering amidst the clouds, arose a sea of summits grander and still more magnificent.

There, guarded by the mountain peaks and ridges, arose Mt. Marcy, which, by barometer, they found to be 5,467 feet above the sea; and there, hidden, lay Lakes Colden and Avalanche, long thought to be the highest bodies of water eastward of the Rocky Mountains.

This was almost the first scientific exploration of the mountains; for though the Indian and white hunters had long traversed the region, and had, even for the unvisited summits, names which many of them still retain—despite subsequent renaming—the only recorded measurements of the mountains, on which is placed reliance, are those of Profs. Redfield, Emmons and Benedict, during the progress of the geological survey. These altitudes were all taken with mountain barometer, the last reported measurements being made in 1839, and recorded in the report, Assembly Document No. 50, for the year 1840.

The heights measured at that time were few; two mountain summits only—Mt. Marcy and the Owl's Head—being recorded in the valuable report of Prof. Benedict. A few other summits were measured by other observers with the inferior instruments of the day, and to many unvisited mountains, lying in the depths of the wilderness, an estimated altitude was given by guess, more as a means of comparison than as an exact statement of their altitude.

Beyond this hypsometrical work and the taking of a few magnetic bearings of important points, no addition was made to our knowledge of the topography; nor was such a result to be expected, the labors of geology requiring undivided attention.

Since that period maps of the wilderness region have appeared, generally compiled from the notes of tourists and the statements of hunters or guides; in which the publisher has often so mistaken his informant as to place some mountains in the wrong towns or counties, or (as in one instance), to make space for three large and magnificent lakes, where, in reality, but two exist; while a thousand of the most prominent features of the wilderness, cloud-capped mountains, broad-stretching ponds and rushing streams, are totally omitted.

Previously to the granting of the appropriation for which this report is rendered, by continued exploration of my own in this wilderness, a mass of topographical material had been gathered. The general positions, names and shapes of most of the un-mapped or wrongly mapped mountains, lakes and rivers, had been ascertained, and the general character of even the hitherto unvisited portions of the country noted.

It was designed to found upon these observations a map of the wilderness more correct in its topography than any previously published, and, consequently, more useful; a contribution to the geography of a portion of the State which, as has been shown, is mathematically almost unknown.

In the endeavor to properly locate on paper, this mass of material, the gravest errors were detected, even in maps founded upon actual surveys; and the points which I had selected as topographical centers were found to be themselves undetermined. For instance, the position of Mt. Marcy, the summit and center of the Adirondack range, and the highest mountain in the State, was found to have never been established; the place of that great mountain landmark upon the maps being miles distant from its real location. Compass bearings had been found generally worthless, owing to magnetic disturbance, peculiar to this region, and to the local attraction, probably

attributable to the great masses of magnetic iron ore, so abundant among the mountains.

In this condition of affairs the only resource was a triangulation of these semi-alpine mountain summits, connected with some known base. The vastness of such an undertaking, necessitating the re-traversing of so great an extent of wilderness, the ascending of numerous mountains, several of which have a perpendicular height of 5,000 feet, the labors and fatigues, the dangers of exploration in the great ocean of woods, of accident and of hunger, can only be appreciated by the surveyor, who has passed through such an ordeal.

There remained, therefore, but one resource; a survey with theodolite or transit, entirely independent of the magnetic compass; the object in view being, as heretofore stated, the discovery, by trigonometrical measurement, of the relative angular position of the mountain summits, and other important landmarks, for use in the preparation of a map of the wilderness.

In addition, it was deemed advisable to organize a department of hypsometry, in order that, with the improved mountain barometers, the value of the old measurements could be ascertained, and the altitude of numerous unmeasured mountains discovered. The present survey, being necessarily rapid, would not admit of altitude determinations by trigonometry.

For the use of the very superior theodolite made by Troughton & Simms, of London, and employed in effecting the primary triangulation, I am under obligation to the trustees of the Albany Academy.

The sextant was an instrument of my own, and was useful in the measurement of horizontal angles. It was also occasionally used with artificial horizon in the approximate determination of latitude; but both the latitude and longitude of stations will be best determined by the results of the triangulation.

The mercurial mountain barometer, used at the upper stations on the mountain summits, in effecting their measurement during this season, was new, and of James Green's best construction; scale adjusted for capillarity, and vernier reading to one-thousandth of an inch.

The barometer employed at the near lower station for corrections was the same which I used in the first measurement of Mt. Seward.

The detached thermometers, large and very sensitive instruments, were made by James Green. Each was carried in its case, carefully packed with cotton.

The large, compensated aneroid barometer was also my own. An

azimuth or prismatic compass, telescopic spirit-level, with other numerous smaller instruments completed the mathematical equipments.

At some stations, where signals were required to indicate with precision the position of important points, red, white and black flags were employed. At others, more distant, cones of bright tin were used, so placed as to be given a slight vibratory motion by the wind. These, when the sun shines brightly, may be distinguished at a distance of several miles, sparkling like minute stars. Some of the mountain summits, however, whose relative position it was desirable to locate, were distant from the designed point of observation from fifty to sixty miles, and were, consequently, difficult to distinguish. It was therefore determined to attempt their location by the night observation of lights simultaneously kindled upon their summits. The oxy-hydrogen or calcium light, at first suggested, was rejected as entailing more expense than was warranted, and as impracticable. It was thought advisable to attempt the same result with beacon fires, and, in addition, ribbon or wire of the metal magnesium was procured, with the hope that the dazzling blaze which it affords while burning, would subserve the same purpose as the calcium light.

Copper bolts were provided for use upon five of the more important mountain stations, and sunk in holes drilled for their reception in the rock. Being of pure, soft copper, they will be almost indestructible by weather, and will serve to show the position of the theodolite in this survey to such other and further surveys as may be made. The words "Adirondack Survey," etc., in sunken letters are cut in the flattened heads of the bolts, together with the number of the station.

Bolt No. 1 is in the summit of Mt. Marcy, the center of the mountain system, and of the great quadrilaterals of this triangulation.

Bolt No. 2 is in the summit of Whiteface Mountain.

Bolt No. 3 is in the summit of Owl's Head Mountain.

Bolt No. 4, intended for Crain's Mountain, Warren county, was not sunk; the station not being satisfactory.

Bolt No. 5 is in the summit of the Bald Peak, in the town of Moriah, Essex county, near Lake Champlain.

Three gentlemen, at different times, gave their services as assistants, their expenses being paid: R. E. Prescott, C. E., taking barometrical observations on one mountain; T. James making the barometrical observations on the summit of Bald Peak, and at Whiteface Mountain, and at Bennett's pond synchronous with those taken at Lake Placid; M. Blake making, during the survey at near lower

stations for corrections, barometrical observations, showing the change or variation of atmospheric pressure. The barometrical observations at the more important mountain or lake stations, and the measurement of all the angles, by theodolite, sextant or prismatic compass, were made by myself. The reconnaissance maps of topography are also my work.

More than twenty experienced woodmen, or guides, were employed at different times during the season in carrying theodolite, baggage and provisions. The lighter and more delicate instruments, sextant, barometers, etc., were carried by myself and assistants.

FIELD WORK.

The field work was commenced in the neighborhood of Lake Pleasant, Hamilton county, in the latter part of July. It was intended that, starting here, in the south-western portion of those mountain ridges which form the Adirondack chain, the triangulation should be advanced north-easterly, station by station, to Lake Champlain, and a perfect connection thus preserved throughout the survey. It was estimated that the leveling by mountain barometer and the topographical mapping could be advanced with the primary triangulation, thus avoiding the expense of more than one survey party.

Topographical reconnaissance was carefully made of the neighborhood of Lake Pleasant, several map sketches secured, and three triangulation stations made. On the 31st of July I ascended and barometrically measured Speculator Mountain, a prominent summit not to be found on any map, an assistant taking observations for corrections at the foot of the mountain. The altitude of this summit is computed at 3,004 feet above tide.

In the preparation of reconnaissance maps of topography, several summits near Lake Pleasant were ascended and measured with the large aneroid barometer. Burnt Mountain, according to these observations, has a height of 2,085 feet, Rift Hill 2,104 feet, and Holmes Hill 2,085 feet above tide.

On the first of August, with three guides or packmen, carrying theodolite, provisions, etc., we left Lake Pleasant for Lewey lake, an unsettled point, situated further in the forest.

There is some question as to the proper orthography of the title "Lewey." It is derived from the name of a Canadian Indian hunter, at one time a resident upon the lake shore. His name has long been written *Lewey*, and as the name thus spelt has appeared upon the State maps, it is best to retain it, and avoid hypercritical correction.

Near this lake arises a lofty mountain, which I had long regarded with interest. The best maps hitherto published show either level ground or slight hills where it really arises to the clouds. Its measurement was desirable, for I suspected that it might be even higher than some of the famous Adirondack summits. In 1868 it first particularly attracted my attention from Lewey lake. In 1870, I ascended and made a barometrical measurement of Mt. Emmons, or Blue Mountain, eight or nine miles distant from this peak, and found that instead of being 4,000 feet in height, as supposed by Prof. Emmons, it was really lower than his estimate, or about 3,595 feet above tide. From Mt. Emmons I was again surprised at the great height of the unmapped mountain thus towering where the maps show nothing but a plane, and, determined to visit it at the first opportunity.

It is known to the guides and hunters, as Bald Face, or Snowy Mountain (the snow remaining on it late in the spring), and has also several other titles.

August second was stormy, but by noon on the third the weather improved, and gave promise of being fair enough for the work. Leaving an assistant to take observations at a lower station on the shore of Lewey lake, accompanied by two guides carrying theodolite and provisions, I started immediately on the ascent. We made a rapid march, and passing over some subordinate mountain ranges, camped that night in a notch below the summit, near the edge of a precipice, which dropped sheer downward 100 or 200 feet.

Our camp was so elevated (3,650 feet), and the eastern precipice side of the notch so free from forest, that the sun, as it rose on the morning of the fourth, gleamed brightly in our faces, while all below was dark and robed in fog. We immediately addressed ourselves to the ascent, and early in the day reached the summit of the peak, which I shall hereafter term Snowy Mountain. The forest on the summit was in some places small and dwarfed, but was nevertheless too high to give a perfect view of the whole horizon.

A place being selected, the trees were chopped away by the guides, and the theodolite work commenced. As soon as the instrument was adjusted the telescope was turned upon Mt. Emmons, and the angle of depression, though slight, indicated that it was the lowest, after all due allowance for curvature of the earth and for refraction. The summit of Mt. Marcy arose sharply in the north-east, and was selected as the zero of measurement; and, as the day was beautifully clear, the angular work proceeded steadily, save slight intermission for barometrical observations.

Bread, without water, made our lunch, and at dusk we hurried as best we could down from the lonely crag, to be soon overtaken by darkness, compelled to wrap our blankets round us, and, making the tree roots pillows, there pass the night. The following day, hungry enough, we reached Lewey lake again.

The altitude of Snowy Mountain, by barometer, is 3,859 feet above tide, which renders it almost positive that this unmapped mountain is indeed higher than the famous Mt. Emmons. The synchronous observations of the assistant observer on barometer at the lake shore give for the height of Lewey lake 1,711 feet. This would make Snowy Mountain 2,148 feet above the lake.

Several reconnaissance maps having been completed and geodetic connection with the lake made, we passed, on the 6th, to Indian lake, the elevation of which, by barometer, is 1,669 feet.

The next undertaking was the exploration of the sources of Cedar river, about which much doubt existed. On one map a chain of ponds, which I had long known as the Cedar lakes (and which I had supposed were at the head waters of Cedar river), are shown as part of the West Canada lakes or sources of the West Canada creek, flowing westward. On another map, at this moment commonly sold to travelers of the wilderness, it is shown emptying into Moose river, under the name of Moose lake. These I knew to be mistakes, but it was important to prove them so.

Leaving Cedar River settlement on August 7th, we reached Cedar river falls the same day. The height of this station above tide is 2,098 feet. In the evening, altitudes of *Polaris* were taken with sextant and artificial horizon, for approximate determination of latitude. On the 8th Moose lake was reached, at the head of Moose river. From this point a lofty mountain, hitherto nameless, and of about the same altitude as Snowy Mountain, is visible at the south. The guides, in compliment, called it by my name. Proceeding about six miles further we struck Cedar river again, having crossed the great bend, and the same evening, following up the river, reached the Cedar lakes, thus proving conclusively that they really discharged their waters to the Hudson river side of the watershed.

During this day's march through the forest we remarked, with wonder, that almost all the majestic spruce timber was either fallen and decaying or standing dead, so penetrated with dry rot and decay as to be crumbling to pieces. The same timber, only a few years since, was apparently sound and valuable. Now the lands on which they stand will probably not command ten cents an acre. This sud-

den decay of the forest is a most important matter to the owners of timber lands thereabouts, and deserves the attention of the botanist.

The night of August 8th was remarkable for an aurora borealis, which covered the whole dome of the heavens with a crimson canopy.

The morning of the 9th was devoted to topographical and barometrical work. The form of the Cedar lakes being approximately found by angles measured with sextant, by a forced march in the afternoon, we returned to Moose lake. The altitude of the Cedar lakes is 2,493 feet, and that of Moose lake 2,202 feet. Though the 10th was very sultry we marched back to Cedar river falls, and the same evening, in a furious thunder-storm, again reached Cedar River settlement.

The 11th was Sunday. One guide was paid off and returned alone, *via* Lewey lake, to Lake Pleasant. On the 12th we proceeded to Round lake where we encamped. The altitude of Round lake, by barometer, is 1,885 feet. The 13th opened stormily, but with an additional guide we struck into the woods to Long pond, a small and narrow sheet, whose elevation and position it was desirable to ascertain. Recent signs of bears were very abundant, the berries in the open glades affording them rich food. The lake, by barometer, is 1,924 feet, and the mountain near it has an altitude of 2,232 feet, both from tide. Soundings were taken in the lake and a reconnaissance map made. The sphagnum swamps in this neighborhood, though not very large, are remarkable for the beauty and depth of their velvety moss. Moving swiftly through forest and swamp, soaked with rain, we reached, late at night, a log hut occupied by a French or Canadian family.

On the 14th of August rapid progress was made, and, by way of Puffer and Thirteenth ponds, reached the village of North River. By barometer the elevation of Puffer pond is 2,193 feet, and that of Thirteenth pond 1,652 feet, above tide-level.

The guides hitherto employed were here paid off and discharged. It has rarely been my fortune to employ better or more reliable men.

August 15th we ascended South Mountain and made angular observations and one reconnaissance map. The height of the mountain, by the large compensated aneroid barometer, is 1,917 feet. The same day we drove rapidly to Johnsburgh, Warren county, and that night were at the foot of Orain's Mountain.

This mountain was thought, by the late Prof. Emmons, to be an excellent station in case a triangulation of the mountains should ever be attempted, and I now designed making it the southerly corner of the great exterior quadrilateral of the survey. The morning of the 16th was cloudy, but with guide and packman I made the ascent of the mountain. Owing to a severe storm, which continued all day, we were only able to make a barometrical measurement, from which the altitude of the summit has been computed at 3,252 feet; and owing either to the exposure to the storm or the roughness of the climb, had the mortification next morning to find that the barometers were all out of order. Their repair, with other reasons, necessitated our return, and we reached Albany on the following day. The barometers were taken to New York, where they were fortunate in receiving the personal attention of Mr. James Green, instrument maker to the Smithsonian Institute.

The preparations for the further progress of the survey consumed some six or seven days.

The barometers and other instruments having been placed in complete order, the necessary camp equipage, heavy blankets, rubber coats, etc., provided, we were prepared for the second expedition into the wilderness, which was to include the most arduous as well as the most important work of the survey.

It was proposed to make theodolite stations on the summits of two of the prominent mountains on the west shore of Lake Champlain, near Crown Point, and from each to take, as *zero*, the apex of the government light-house on that point; by that means connecting the stations with the United States hydrographical survey of the lake. As the positions of the light-houses on the lake have been determined with astronomical precision, they form an invaluable basis for work of this character. It was now intended to advance the triangulation westward from this point into the wilderness, and connect it with the angles already measured.

Reaching Port Henry, near Crown Point, on August 27th, arrangements were made for conveyance, and on the following day we proceeded toward Bulwagga Mountain, and selected, as the first of the stations, a summit lying a mile or two westward and known as Bald Mountain. The mountain to the northward, in the town of Moriah, known as Bald Peak, was selected as the second station. The Bald Mountain, from which the forest had long since been burned, afforded extraordinary facilities for the work of triangulation. As the altitudes were to be taken with mountain barometer, one assistant, with

barometer, was detached and returned to the lake shore, as a near lower station, with orders to take observations at intervals of five minutes during the continuance of our party upon the mountain. Meanwhile, procuring a man to carry the theodolite, we ascended the mountain, which was steep and fenced with rock ledges and ghastly with crumbling trunks of burned trees. The summit gained, the first labor was to chop down and clear away a growth of young trees that obscured the view in one direction. The theodolite was then placed and adjusted, and the whole circle (clamped at zero), turned till the cross-hairs of the telescope stood with precision on the very apex of the distant light-house. The circle was now carefully clamped and the vernier plate being released, the telescope was turned upon the mountain summits westward, and angle after angle was carefully measured and remeasured, and recorded. The sky was clear and favorable, and the weather, which below had been extremely warm, was here cool and pleasant. Meanwhile an assistant had placed the mountain barometer, and sheltering it from the sun with a poncho thrown over a tripod of poles, took careful observations.

Late in the afternoon it became evident that another day would be required upon the summit, and the guide was accordingly dispatched for provisions and blankets. We continued at our duties until the sun slowly sank behind the mountains, the valleys filling with shadows, and Lake Champlain, from a glittering sea, was turned to a drear and gloomy waste. Darkness was soon upon us, and after a long and toilsome descent among the rocks and ledges, where it was almost impossible to see the way, the guide was met, returning with aid of lantern.

Camp was made beside a small stream flowing at the foot of the mountain, and the bright fire burning and plentiful provisions made our late labors trifling. Wrapped in blankets, the fire glowing at our feet, we passed the night, with no other roof between us and the stars than the slight, swaying foliage of the trees.

The night was cold, but the morning of the 29th opened brightly, and was propitious for the survey. Again climbing the mountain, we resumed the occupation of the previous day, and in addition to the regular work I was able to take the angular direction of Mount Mansfield and the Camel's Hump in the Green Mountains. Reconnaissance maps of topography were secured, and we were able to descend and reach a farm-house, some miles distant, before evening, having auspiciously opened the work on the eastern angle. The barometrical observations of the first day indicate that this mountain

has an altitude of 2,278 feet. The height of Lake Champlain above tide, as indicated by the barometrical observations taken there and compared with the records of the Dudley Observatory, is ninety-one feet.

August 30th opened with a storm; the rain descended heavily, and while looking upon the low, gloomy clouds and fog with unpleasant forebodings, we could not but congratulate ourselves upon the completion of the triangulation work at this station. Packing up our instruments, we took seats in a rude wagon, and, amidst pouring rain and spattering mud, reached Port Henry again.

The light-house at Crown Point was next visited, and angular readings taken from the turret. It is an important station, as from its well established geographical position, the latitude and longitude of stations connected with it (and as is proposed with other light-houses), by this triangulation, will be known with more precision than by any astronomical method practicable in the field.

On the 31st of August the place of assistant Prescott was taken by Mr. James, and we immediately proceeded to Mineville, Essex county, in the neighborhood of Bald Peak, which had been selected as the second of the lake-shore mountain stations.

The morning of September 1st was bright, the thick clouds which for several days past had been drifting between us and the mountain prospect had vanished, and we hastened to avail ourselves of so unusually favorable a day. The Bald Peak, like the Bald Mountain, our previous station, had been, at some distant period, deprived of its forest by fire; so long since, indeed, that large evergreen trees had grown near the summit. Those which obstructed the view were cut away.

As this was one of the five more important stations, the eastern angle, or corner of the great exterior quadrilateral of the survey, a copper bolt (No. 5) was securely fastened in the rock, and will show to future surveyors the position of the theodolite. The day was superb and nearly cloudless, and knowing the fickleness of mountain weather all possible dispatch was made; and at sunset, although exhausted, we had the satisfaction of closing our field-books upon completed work. Mountain after mountain had been brought under the field of the telescope, and the horizontal angles, so carefully measured, exceeded sixty, nearly every one of which served to locate the direction of separate rocky peaks, many of which we had yet to climb, often with no sign to guide us through the trackless woods.

The usual barometrical altitudes were taken, and show for Bald Peak an altitude of 2,083 feet above tide; signal staff and flag was placed at the theodolite station.

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On the following day (September 2d) we returned to Port Henry, and the same evening, by steamer on Lake Champlain, arrived at Plattsburgh. On the 3d we reached Wilmington village at the foot of Whiteface Mountain, which I had selected as the northern corner of the great quadrilateral, which, it may be remarked, incloses the most mountainous and rugged portion of the wilderness.

Leaving an assistant at Wilmington as observer on barometer at lower station, we climbed the mountain, and shortly after dark reached "Rustic Lodge," on Whiteface; a log shanty now occupying my camping ground of 1869. The night was wintry, and the morning of the 4th showed the forest whitened with snow and ice. The altitude of Rustic Lodge, as taken with barometer, is 4,080 feet.

We were early upon the summit of Whiteface and had the instruments up and adjusted. The day was most unfavorable for triangulation. Heavy clouds drifted around and below us, hiding everything. But, after a few dismal hours of waiting, the snow-white vapor lifted and suddenly we saw the rugged mountain crests, dark passes, blue gleaming lakes and sparkling ponds. Nevertheless, the clouds still hung around the central Adirondack peaks, and the summit of Mt. Marcy was long invisible. The constant drift of small clouds over the higher summits made the triangulation a slow and tedious labor, with more time fretted away in waiting than consumed in work. Two days were thus passed upon the summit.

At length all the angles had been measured; the Gothics, Marcy, McIntyre, Seward, Morris and St. Regis Mountains, with all the numerous summits intermediate in view, in the circuit of the horizon, had been located; even the corners and points of lakes, and the position of the prominent rude buildings of backwoods clearings far below, in the shadow of the deep valleys, were mathematically noted. Two signal flags were placed upon the summit and complete reconnaissance maps made; and two days' continuous duplicate readings of the mercurial mountain barometer, one set taken on the summit and one at the foot of the mountain, afforded better and more complete data for the determination of the height of Whiteface than any previously secured.

Whiteface first appears in print as having an elevation of 2,686 feet. This great error was corrected by the geological survey, and its height as given in the State Natural History is 4,900 feet above tide. My measurement confirms this result, and makes the height of the mountain 4,918 English feet above the sea.

We reached Wilmington, at the foot of Whiteface, in the afternoon of September 6th, and the same night, after a long and tedious drive, arrived at Lake Placid.

The seventh was devoted to topography and barometer work in the neighborhood of Lake Placid (which by barometer is 1,954 feet above tide), and in preparation for the more difficult labors of the survey. We were now again about to enter the great forest, having to make all further progress among the mountains on foot, all the baggage and heavy instruments being carried upon the backs of men. Provisions also, though plain and compact, formed a very considerable and weighty portion of the portage.

The eighth of September was Sunday. On the ninth, after barometrical work in the neighborhood of North Elba (from which the altitude of that place has been computed at 1,635 feet), with three packmen carrying our heavier material, we crossed the Ausable river, and, entering the woods, took the trail for the Indian Pass. We camped that evening beside the brook along which I descended from the summit of Mt. McIntyre in 1871, and building a shanty of boughs, passed a comfortable night. The altitude of this camp was 2,197 feet.

The morning of the tenth found us early upon the trail, and at the northern portal of the Indian Pass. Here a new camp was hastily made, and sending an assistant, with one guide, over the pass to the Hudson river side of the mountains, with orders to take barometrical observations at the south foot of Wallface Mountain precipice (valley), I took with me the other guides, and leaving the trail, proceeded to follow the main branch of the Ausable to its source. We were in hopes of finding some little lakes, known as "Scott's ponds" which, though doubted by some who had been unable to find them—Mr. Scott, their discoverer, having only seen them in winter, as level, snow-covered openings in the forest—were said to exist upon the top of Wallface, and which were probably the highest sources of the Ausable river. After a toilsome climb up the steep gorge of the river, wetted by the spray of many an unnamed waterfall, ascending slippery ledges by aid of rope-like roots, we reached less difficult ground, where the stream divided into a number of smaller brooks. These streams had probably been the means of bewildering previous searchers for the ponds; lack of woodcraft leading them to waste time in exploring to their source all the numerous brooks. Pushing forward we passed the clear, cold, spring-like streams, following, without hesitation, the more tepid and discolored water of one branch which tasted like that derived from a

pond or bog. Advancing in this manner, I caught the first glimpse of open water, which proved to be the largest of these high mountain ponds. It was small and apparently shallow. Several brooks enter it; one coming from two level moss-swamps which, in winter, had also probably the appearance of ponds. The altitude, by barometer, was found to be 3,054 feet, or higher than either Lakes Colden or Avalanche.

Leaving the pond we passed to the western side of Wallface, where the brooks trend to the Raquette, through Cold river, but finding nothing of importance returned, and wandering through the marshy forest, hazy with thick, bewildering masses of cold, driving clouds, had the fortune to stumble upon another lake, whose shores it is probable had never been previously visited by man. The altitude was greater than the first pond, being 3,131 feet. It was a wild, unearthly place, and to the subdued, muttered words of the guides, came the sudden snort of a deer as he fled from our approach.

In the afternoon we reached the summit of Wallface Mountain, measured it, observation for observation with the station in the abyss at the foot of the precipice, where the assistant was busily engaged. Afterward, descending to the verge of the cliff, observations were made to ascertain the greatest height of that tremendous monument and record of dynamical geology. The altitude of Wallface Mountain was found to be 3,856 feet, and the height of Wallface precipice 1,319 feet. One reconnaissance map was made. Moving with celerity we were able to reach our camp again, at the north portal of the pass, shortly after dark. This was the first of a series of movements in which the labor of several days was pressed into one, and in which the wilderness was shown to be traversable to skillful woodsmen by night as well as day.

Next morning (September 11th) the whole party entered the Indian Pass, and after altitude observations at its center, which give for its elevation 2,901 feet, we passed beneath the dizzy crags, on the verge of which we had stood the previous day, and the same afternoon reached the deserted iron-works at Adirondack village. The day, as usual, had been one of storm and rain.

A slight delay was here necessary to enable us to replenish our supply of provisions from the slender stock of the single family residing in this lonely valley.

As the next station in the mountains was not more than seven miles distant, we took what provisions could be had, and at mid-day on the twelfth departed, notwithstanding the continuance of stormy weather;

for I thought it best that we should be near our central station (Mt. Marcy), in order to take advantage of the first clear weather, if we should be so fortunate as to have any.

Reaching Lake Colden, a little after dark, we encamped on the north shore of the Opalescent river, which, during the night, swollen by the heavy rain, became a furious torrent. The party was accommodated in bark wigwams, each of which afforded shelter for two persons.

The next day the storm still continued unabated, and our chief occupation was to keep the apparatus from damage by water which soaked the floor, and dripped through the bark roof of the wigwams. A guide was sent back to the deserted iron-works for more provisions, for which we had made arrangements (for we contemplated making this point a depot of supplies), and another guide was employed in cutting down a large cedar tree, and hewing it into the shape of a canoe or dug-out for use in the mapping of Lake Colden, on whose waters no boat had hitherto floated.

The morning of the fourteenth was also stormy, but, upon the return of the man detached for provisions, immediate preparations were made for the ascent of Mt. Marcy. Baggage was reduced to a minimum, provision for the party for one day only being carried.

We were early upon the trail, but, with the heavy theodolite and fragile barometers, made a slow march. The weather continued so unfavorable, and consequently the probability of our being able to accomplish the work was so slight, that even the guides, who had now acquired an interest in the survey, appeared discouraged. As hour after hour we ascended the foaming, rock-girt Opalescent river toward its source, the weather became colder and the thick clouds more disheartening.

It is not necessary to descant upon the climb. It was late afternoon, when, drenched with rain or cloud, that despite rubber covering had penetrated our clothing, we stood shivering in the gray, icy mist that swept furiously over the summit of Mt. Marcy. Benumbed with cold and unable to see for more than a few rods around, at the entreaties of the guides I reluctantly ordered an immediate descent, which was made upon the opposite or eastern side of the mountain. About a mile from the summit we found a level spot where water could be had, and decided to camp. Upon attempting to put up the tent we found our fingers so stiffened by cold that we could not button the canvass together, and the guides, after chopping some of the dwarfed timber for firewood, gave up in despair, and declared that

we would "freeze to death" if we stayed there that night. Tent, baggage and instruments were again shouldered, and we descended the slippery rocks down and across the great slide on Marcy, toward the spot, two miles distant, where I had encamped last year, and where we hoped to find the bark huts still standing. Meanwhile the rain did not cease to fall, and it was dusk when, trembling from fatigue and exposure, we stumbled into the old camp in Panther Gorge.

The courage of our guides now returned. The timber was here large and good, and soon the echoing sound of chopping was heard, and the white chips flew from the trunks of the dead, dry, spruce trees. Huge logs of spruce and hard wood were quickly roaring and blazing, and we steaming before the fire in our soaked clothing.

All were so exhausted that, directly after supper, we wrapped our heavy army blankets round us, and fell asleep.

In the middle of the night the penetrating cold aroused us, and shouting for the guides to renew the fire, I saw with delight that the long storm had broken, for the sky was clear and the stars sparkled in the blue firmament. With the warmth of the fire came slumber again, only broken by daylight.

The morning of September 15th showed us that during the night we had received a visitor. Signs of panther had been numerous, but the new comer was a noble deer-hound, who had evidently, in following his prey into this most deserted portion of the wilderness, been lost. He was only too glad to join himself to human company. Our low stock of provisions made him an unwelcome visitor, but his evident timidity among strangers, and his determination in following in our track as we again ascended Mt. Marcy, won him friends.

The sun, which we had missed for so many days, now shone brilliantly over a cloudless landscape. Before leaving the timber a small tree was cut for signal flag-staff, besides some stouter ones for props.

The summit of the peak was early attained, and the barometrical work immediately commenced. The theodolite was probably the first ever placed upon Mt. Marcy. The day was so clear and favorable, so absolutely cloudless, as to be surprising; it seemed as though specially made for the work we had in hand. Thankful to the all-seeing Providence for this assistance, we did our best to take advantage of it, and the triangulation proceeded without an instant being taken for rest or refreshment during the day.

At night, by observations of *Polaris* and *Alioth*, the true astronomical meridian was laid out, and the declination ("variation") of

the magnetic needle determined. Though we kindled a beacon fire and burned magnesium ribbon, there was no visible response from the other signal stations, and the attempt at measuring the great angles by this means was consequently a failure. The mean of the barometrical observations taken this day indicate for Mt. Marcy an altitude of 5,333 feet.

The following morning (September sixteenth) work was continued until eleven o'clock, when a severe storm setting in, the tent was struck, and camp broken up. Taking with me one guide, I descended the south side of Mt. Marcy, with the intention of climbing and barometrically measuring Skylight Mountain and Gray Peak, and to visit a little lake lying in the chasm between the mountains.

The rest of the party returned by the trail to Lake Colden, where a series of barometrical observations were immediately taken by the assistant, at short appointed intervals during my absence. For ourselves, the cloud was so dense that we could see nothing a hundred yards distant, yet we were able to reach the Gray Peak and measure it. About four P. M. we stood on the shores of the little lake, in a deplorable plight, our boots full of water and clothing torn and dripping. The altitude of the Gray Peak, by aneroid, was found to be 4,947 feet. This little lake, by the mercurial (Green) barometer, has an altitude computed at 4,293 feet above tide. The little pond was a red-letter point in this survey, for we found it, as I had long surmised, not flowing to the Ausable, as has been represented, but to the Hudson river—an inaccuracy of the maps, which is perhaps the best proof that we were the first to ever really visit it.

Lakes Colden and Avalanche have been known, and still are known, as the highest lake sources of Hudson river, being placed, respectively, at 2,851 and 2,900 feet above the sea. This pond, with its elevation of 4,293 feet, will be interesting to the physical geographer. It is, apparently, the *summit water* of the State, and the loftiest known and true *high* source of the Hudson river.

Wet and chilled, we were forced to abandon for the time the attempt on Skylight Mountain; there was little chance also of valuable results being obtained in such a storm. Following the outlet of *Summit Water*, we made a hazardous descent through the ravine of Feldspar brook, reaching the shores of the Opalescent river about dark. The trail hence to Lake Colden, fair enough by daylight, proved full of stumbling blocks by night, and occasionally we plunged into the crevices amid the rocks, with a suddenness that threatened

to break our limbs or fracture the barometer. We reached camp, however, without any accident.

September seventeenth opened with storm, and we determined to complete the canoe, or "dug-out," map Lake Colden and make soundings. Barometrical observations were taken by the assistant at the lake shore, while I gave my attention to theodoliting, by observations of the summits of Mounts McIntyre and Colden, connecting points on the lake, with the primary triangulation. The canoe was finished by nightfall, but required some slight touches before launching. The stray hound, which still remained with us, here made an onslaught on the provisions, devouring all the pork. A guide was sent for a fresh supply, and was directed to lead the dog out and leave him. The hound, however, escaped on the way, and, running a deer to water, returned to our camp.

On the eighteenth, the guide sent out for provisions returned about noon, and the storm clearing off, late as it was, we started to ascend Mount Colden. This dangerous climb was one of the adventures of the expedition. It is the mountain from which sped the avalanche of 1869, that temporarily severed Avalanche lake, and is a rugged mass of rock, with precipice piled above precipice. We were able to make the ascent, measure it barometrically, do some triangulation, and secure several topographical or reconnaissance maps before dark. Of the dangers of the descent, finished at a quarter to eleven at night, I will not speak.

The following day, which was one of rain and heavy clouds, I launched and tested the canoe—named the "*Discovery*"—being the first boat of any kind ever placed on Lake Colden, and was surprised at the shallowness of the lake. The boat was then transported to Avalanche lake, on which also no boat of any kind had ever floated, and I had the pleasure of the first sail upon that gloomy water. The canoe, though narrow, carried three men with ease—and more when balanced with out-riggers—and it enabled me to make soundings in different parts of the lake, and to examine the geological structure of the cliff walls, which fall directly into the water. This, with the barometrical leveling, engaged us to so late an hour that we had again to stumble along the trail in the dark, back to camp at Lake Colden. The canoe remains at Avalanche lake, and will render the Avalanche pass more convenient to travelers.

The 20th of September showed no abatement of the stormy weather, and as our provisions were again nearly exhausted, and the time which I had allotted for work in the neighborhood had passed,

camp was broken up. With one guide I determined to descend the Opalescent river, and ascertain its course from Lake Colden downward.

Accordingly, I sent the rest back by the trail to the old Iron-works, by way of Calamity pond (elevation 2,560 feet), and taking all the provision—which was only sufficient for two meals, started. We were immediately separated from our companions and committed ourselves to the woods, during the whole morning continuing to follow the Opalescent downward. The clouds hung so very low that the summits of the mountain stations, and indeed of the inferior ridges, were invisible. The cold also increased and the wet bushes, from which the yellow, faded autumn leaves were now fast falling, gave a mournful appearance to the forest. At lunch we consumed half of our supply of food, reserving the remainder as a precaution, in case we should not be able, as intended, to cross the mountains and reach the old Iron-works that night. The woods here seemed peculiarly wild, traces of game became abundant, and in one place we came upon the bones and fragments of a deer, which had been killed by a panther and torn to pieces.

Late in the afternoon we left the river and climbed the flanks of the mountains to the west. The clouds were so dense in the valley that nothing could be distinguished; but, compelled to hasten, we took our course by compass and pushed directly over the mountain ridges toward the Hudson. In this way we became entangled in an almost impenetrable mass of fallen timber, a "wind-slash," which probably extended over more than a thousand acres. Here, in clambering and crawling amidst the dead forest, which, crumbling and decayed, was a perfect chevaux-de-frise, after an hour or more of exhausting labor (the fog rising thick around us), we were compelled to acknowledge that we were lost. About dark, after crossing numerous hills and ridges, we succeeded in extricating ourselves from the slash. Below us was an almost precipitate steep of dark spruce woods. Seeing that we should have to camp, we descended and hastily searched for water. A rill was at length found, and the guide casting off his pack hurriedly proceeded to cut wood for the night. Our food all disappeared at supper, and we slept—one on either side of the fire,—on spruce boughs cast on the wet ground. Some wild creatures came around us at night, but we were too tired to pay attention to them.

The twenty-first opened with brilliant sunshine, yet as no well-known mountain peak was visible, we were as much lost as on the previous

day. Breakfastless we resumed our march, and after climbing ridges, working our way through fire-slash, through swamp and through water, reached the Hudson and the old Iron-works.

Here the guides, dissatisfied with the severity of the labor, demanded their discharge and asked increased pay; nor could they be persuaded to proceed further, exhibiting their torn clothing and soleless, gaping boots, as evidences of their inability. They were, accordingly, discharged, and returned on Monday, *via* the Indian Pass, to North Elba.

On Monday and Tuesday (September 23d and 24th), topography work was done in the neighborhood of the deserted Iron-works and at Lake Sandford; repairs and preparations were also made for the further progress of the survey, two sub-expeditions having to be made from this point; one to Mt. Santanoni and one to Mt. Seward.

On the twenty-fifth we proceeded to Tahawus settlement, about ten miles distant, and secured packmen for the sub-expeditions.

Starting from Tahawus on the following morning, we reached the Iron-works about noon on our way to Mt. Santanoni, which was to be one of the triangulation stations. In the evening we made a brush camp and passed a comfortable night. Next day (27th) we were early traversing the woods (there was no trail nor were there choppings on the trees for guidance), and following a small stream which came from the lofty crest, continued to ascend. The open character of the gorge we climbed, enabled me to apply my method of approximate measurement, by barometer and level, of inferior mountains to several summits, as hereafter more particularly described, from which the height of Andrew Mountain is found to be 3,180 feet, and North River Mountain 3,722 feet.

We reached the summit of Santanoni about mid-day. Singularly enough, the weather, which for a day or two past had been threatening, was now moderately fair, and permitted the angular observations to be made very complete. Mt. Marcy, so often shrouded in the clouds, stood grandly out, a sharp, gray cone. The positions of various lakes and their islands were determined, and especially the lower end of Long lake, which, like a great river, lay stretched before us in the west. Late in the afternoon the work was stopped by heavy clouds, but not until the necessary angles had been measured, the barometrical observations (showing its height to be 4,607 feet) finished, and five reconnaissance maps of topography completed. The sun was setting as we left the crest and forced our way down through the dwarf balsam and spruce trees on the flanks of the

mountain. We had left all our heavy baggage cached a mile from the summit, beside the gorge up which we had climbed. For sake of food, camp-fire and blankets we hurried down in search of the gorge, and in about an hour found it, and commenced its descent just at dark. At length, very tired, we found our supplies, and by the light of a torch the guides cut night wood and built a hut of balsam boughs, the sound of the ax echoing desolately in the dark forest.

During the night the clouds disappeared, the stars shone out and a furious, cold wind swept over the woods.

Next morning (September 28th) we made a forced march, passing the camp of two days previous, and the same evening reached the old Iron-works.

The next sub-expedition was to Mt. Seward. It was advisable that this important mountain should be made a triangulation station, and I was also desirous of remeasuring it, having now an assistant with barometer stationed at the Iron-works, who would take synchronous readings at that place as a near lower station. My ascent of Mt. Seward in 1870 had been made from Long lake, eastward, up to Cold river. We were now above the sources of that stream, and to reach the mountain's foot must descend Cold river, westward. The guides knew nothing of that portion of the wilderness, and placed upon my shoulders the responsibility, in addition to my scientific labors, of *guiding* them.

The twenty-ninth was very stormy, but in the afternoon we proceeded to the Preston ponds, at the head of Cold river, and encamped.

On the thirtieth, though it was still cloudy, we started early, and, by boat, reached the outlet of the ponds. Here one guide shouldered the theodolite-knapsack and tripod, and the other the provision pack, and we proceeded down the river. There was nothing to guide us besides the stream and the compass-direction of the mountain, and the clouds grew thicker and more lowering, so that we could not even distinguish the foot hills. Crossing the river a few miles below the ponds, where a stream entered it on the north side, we ascended the ridge, in order to see whether anything could be distinguished. Having climbed a tree, I suddenly noticed, in a valley below, a lake (unknown to the maps), which I remembered having seen from one of the ridges of Mount Seward in 1870. Supposing that we might have a glimpse of the mountain from the open shore of the lake, we went to it, but only gained a view of the lake and its surroundings. I named it White-cedar pond, for the abundant growth of that tree

upon its shores. We were compelled to diverge a quarter of a mile to reach the outlet, a small stream, and pressed on in the direction in which we thought Mount Seward lay. Presently commencing to ascend, we followed up a small brook, and continued to climb the mountain-side till we were lost in the clouds, and the general murkiness preceding night warned us to encamp.

Surprised at the apparent elevation of our resting place, I took barometrical observations, which indicated that the altitude was 2,951 feet, which was rather surprising, as we could not yet have reached the slopes of Mount Seward, and must, therefore, be upon the mountain eastward of it. This we called "Camp Somewhere," and went quietly to sleep.

October first was as cloudy as the previous day, and, without knowing anything of our whereabouts (the denseness of the fog or cloud preventing our seeing even the forest forty rods up or down the slope), we concluded to keep climbing till we found at least the summit of the mountain on which we were. Hour after hour we continued slowly to ascend, and still the summit was not reached. A barometrical observation showed remarkable altitude, and told me that we must either be upon the slopes of Mount Seward or of Ragged Mountain, the only high summits in this neighborhood. It did not seem as though we had gone far enough to reach Mount Seward, and I concluded that we must be upon the other, which, from the wild sort of precipice-climbing we had now to make, we thought had been justly named "Ragged." The thick, surrounding mist now began to brighten, and at length opened a vast view below of gaudy autumn woods, stretching away southward like a boundless sea. Then the clouds drifted from around us, and, rolling rapidly away, disclosed the superb mountain picture; showed us that we were indeed near the top of Ragged Mountain, and that there, darkly towering above the deep Ouluska pass (the home or *place of shadows* of the Indians), arose the black crest of Mount Seward. It was unmistakable. An involuntary "hurrah!" arose, and we pushed on for the summit of Ragged, for we had no idea of losing the results of our labor. We were soon on top and gazing down on Ampersand pond and the Saranac lakes, away to the north. Observation with the mountain-barometer on the spot gave Ragged Mountain an altitude of 4,126 feet. This was the "Mount Seward" of those who had previously attempted the ascent. It was this mountain, also, and not the rear of Wallace, that I had seen in 1870, at the time of my first

ascent of Mount Seward, forming the eastern wall of the Ouluska pass, as we had indeed noticed in 1871 from Mount McIntyre.

To reach Mount Seward, it was necessary to descend into the pass; and, as with difficulty we found a practicable place among the cliffs, we became more and more impressed with the grandeur of this gloomy gorge, so well named the "place of shadows." It is much deeper than the northern portal of the Indian pass, and having precipices on both sides, has a gloomier and more chasm-like appearance. Reaching the bottom we lunched beside a rill, and the barometrical height of the center of the pass was taken, since computed at 3,050 feet. As the elevation of Ragged Mountain is 4,126 feet, and as Mount Seward upon the other side rises still higher, it is probable that the Ouluska pass is more than a 1,000 feet in depth. It is filled with forest, and the ledges on its cliffs are green with moss and stunted trees.

Signs of the panther were frequent, and it seemed that this remote place must be their favorite resort and home.

The summit of Mount Seward, the very spot which I had reached two years previously, was attained at about two P. M., and the theodolite and barometer were immediately placed. The clouds, however, settling around the mountain peaks, prevented triangulation; yet, in addition to the barometrical observations, I found time to obtain reconnaissance maps. Though waiting till night, the clouds only grew thicker and colder, and at dark we hastily made camp in a ravine just east of the summit. The night was very dark and cold, and we constructed a hut of thick, evergreen boughs, facing the camp fire. The boughs were piled on the roof and sides of the shanty till they were a foot or more deep, and the heat of the fire warmed the open front. It was late when we enwrapped ourselves in blankets, but our sleep was sound, and I reluctantly opened my eyes, at the exclamations of the guides, to see large flakes of snow thickly falling out of the dark, frozen cloud, in which we were, sparkling into the light of the fire. Drawing our feet in from the snow, we slept again, only awakening with the gray of morning.

October 2d showed the summit of Mount Seward whitened with snow. Another series of barometrical observations were taken, and soon the temperature fell to $+32^{\circ}$ Fah. (or zero centegrade), so that the reduction to freezing point correction for these barometrical observations could have been omitted. The temperature fell even lower; the mean of thermometer this day being $+32^{\circ}.22$ Fah. The height of Mount Seward, as computed from these observations, is 4,348 feet above tide. The instruments employed in this measurement were far

superior to those used in 1870, and it is my opinion that the results are therefore more nearly accurate. My previous conclusions (Report on the Measurement of Mount Seward, Twenty-fourth Annual Report of the New York State Museum of Natural History, 1870), are, therefore, remarkably confirmed. The height of 5,100 feet, attributed to Mount Seward by Prof. Emmons, of the State Geological Survey, is thus proved to be in error some 600 or 700 feet.

At eight A. M., as there was no abatement of the storm, the cold growing intense, I reluctantly ordered the descent. Being short of provisions, and all anxious to return, we made almost reckless speed, yet did not reach Cold river till near mid-day. We struck it many miles below where it had been left two days previously. Though we followed it up stream for hours, with all possible rapidity and without stopping to rest, we came to no place where we had previously been, and at length were shut off from the river by high canon walls, through which the deep, clear-green stream flowed sullenly below. We have named this the *Canon of Cold river*.

We were compelled to encamp another night, but next day (October 3d) reached the Iron-works. The height of Lake Henderson was taken this day barometrically and has been computed at 1,838 feet.

It was now late in the season and much remained to be done in other quarters. We accordingly proceeded directly to the settlement at Tahawus or Lower Works, and on the morning of the fourth, by team, reached Rich lake, where boats and another guide were secured. The same night we camped upon the shores of Long pond, being upon our way to Long Lake, *via* the Catlin waters.

On October 5th, Long Lake was reached and the settlement midway upon it. The guides were here paid off and discharged, returning by boat and carry as they had come.

The sixth proving unusually bright and clear, with an assistant and a guide carrying the theodolite, I ascended Owl's Head Mountain and made the usual observations. This mountain is the westernmost corner of the great quadrilateral, and the spot where the theodolite was placed is indicated by a copper bolt sunk in the rock of the peak.

The barometrical altitude was taken by the assistant, with hourly observations by myself. The height as computed is 2,789 feet above tide in the Hudson river. It is interesting to compare this result with the measurement of the same mountain by Prof. Benedict in 1839, with syphon barometer, which indicated an altitude 2,701 feet. The difference is not great, when we consider the circumstances. The

mountain has an irregular summit, and our stations may not have been the same.

The seventh was stormy, but the absolutely necessary portion of the work had now been nearly completed. The relative positions of the great mountain landmarks, and of numberless intermediate points, had been fixed by the triangulation. It was now becoming wintry in this region, and it was almost impossible to get guides to visit the cold mountain summits. The assistant was accordingly sent out with the heavy instruments and baggage, and returned to Albany.

I remained to complete a hydrographic reconnaissance of Long Lake, designing afterward to proceed westward to the Beaver river waters, taking the altitude of lakes by barometer and making such geodetic connection as might be possible.

October eighth was stormy; on the ninth, progress was made on the form of Long Lake with sextant; the reconnaissance from the settlement to near the outlet being completed.

On the eleventh, with two guides, I started westward across the wilderness. One of the guides accompanied me but one day to assist upon a long carry. We reached Little Tupper's lake at dusk, and were hospitably received by a trapper camping on its shore. Barometrical observations were taken, and the altitude of the lake is computed at 1,715 feet.

From *Little Tupper's*, on the twelfth, we passed by way of Round pond, etc., to TUPPER'S LAKE, which is partially in St. Lawrence county. Barometrical observations were taken which indicate for the lake an altitude of 1,504 feet.

October 13th was Sunday, and was stormy. On Monday we proceeded with our light boat up Bog river, by the nine carries, or portages, to the Chain ponds on that river, and encamped. The guide knew nothing of this portion of the wilderness, and henceforward advanced according to my directions. It was now really the Adirondack winter; snow had fallen at intervals during the day, and this night, despite the roaring fire, we shivered in our blankets. Daylight on the fifteenth showed the ground covered with snow, and the evergreen forest gracefully drooping under the weight of feathery crystals. The altitude of the Chain ponds by barometer is 1,707 feet. About midday we reached Mud lake, long thought to be the head of Bog river. The barometrical observations taken here give the height of Mud lake and the elevated plateau on which it lies at 1,737 feet. The rest of the day was passed in a toilsome portage to Bog River pond; the boat being carried by the guide, and the instruments and baggage

by myself. The distance has been called three miles. It certainly seemed longer, as in snow and slush, over hill and through swamp, we forced our way. Camp was made between Bog pond and Clear pond.

October 16th, after devoting some time to an examination of Bog River pond, we carried to Clear pond and thence to Harrington pond, crossing the divide of this portion of the watershed, and reached the streams which flow into Smith's lake and from the head waters of Beaver river.

On the seventeenth, it was my design to make a triangulation station on the summit of Smith's Ledge or mountain, on the west shore of Smith's lake, and this was the first bright and clear day that we had had in more than a week. It was but a short distance from our camp to the ledge, and I was able to measure the horizontal angles between many of our major mountain stations, so that by a construction of the three-point problem, the angular position of this ledge, as measured by theodolite, from those mountains, could be verified, and the lake below and surrounding topography projected upon the map with direct reference to the base on Lake Champlain, more than seventy miles distant. The elevation of Smith's lake above tide has been computed from the barometrical observations at 1,738 feet. The height of the ledge or mountain above the lake may be placed at 498 feet.

Barometrical observations at Charlie pond, on the route to Little Tupper's lake, give its elevation above tide at 1,686 feet, making it fifty-two feet lower than Smith's lake.

It is to be remarked that if, at any future time, it should become necessary to have a greatly increased supply of water for the Hudson river or canals, even these distant lakes and rivers can be made tributary. The water of Smith's lake and of the lakes and streams emptying into it could be turned by a dam and canal into Charlie pond, which empties into Little Tupper's Lake; by corresponding treatment, the waters of the latter could be led into Stony pond, which by the Slim pond empties into Long Lake, and then by the dam and canal, long since proposed by Prof. Benedict, led to the head waters of the Hudson, nearly doubling the upper watershed of that noble river. In view of the proposed Champlain ship canal, this source of water supply may be of interest, but though the expenditure to render it available would be trifling, the consequential damages to mill owners in the settlements, on the lower waters of the streams thus diverted, would be considerable.

In leaving the wilderness, I proceeded down Beaver river, and from Lowville reached Albany.

In November, late as was the season, it was thought advisable to attempt the completion of the angular measurements from the one or two stations which remained unvisited. As soon as the disease (epizootic) among the horses—which had rendered travel beyond railroads almost impossible—had abated, work was recommenced. The angular measurements from the southern corner of the great quadrilateral had been left till the more difficult work, in the interior of the wilderness, had been accomplished. Crain's Mountain, in Warren county, which had been selected and ascended for this purpose, had proved unfavorable, and Mount Moxon or Maxham, north-eastward of it, had been selected as its substitute.

November 14th found me in the neighborhood of Mount Maxham, with theodolite, barometer, etc. On the morning of the fifteenth, accompanied by a guide carrying the theodolite, and a volunteer assistant, we set out for the mountain, some five miles distant. The snow in the woods made the walking uncomfortable, but about noon we reached the foot, and after a short rest, commenced to scale the precipitous front. At this time it was slippery with snow and hung with icicles, and consequently dangerous. After laboriously approaching the summit, we found ourselves in a cul-de-sac on the face of the cliff—the rocks overhanging—and were compelled to descend a distance and try another ledge, where, happily, we were more fortunate, and attained the crest. The theodolite was placed and angular measurements made, but the intense cold ($+25^{\circ}$ Fah., or seven degrees below zero centigrade), with the sweeping wind, prevented complete work. A reconnaissance map was made, and from the barometrical observations taken I have computed the height of this station at 2,479 feet.

It was after 3 P. M. when we left the summit, and so dangerous was the descent that it was nearly sunset when we reached the foot of the precipice. It was the intention to have proceeded from this station to Ticonderoga, where another triangulation station would have been made on the summit of Mount Defiance; but the horse disease—which had ceased in the cities—was here at its height. It was almost impossible to procure conveyance, and the survey was brought to a summary conclusion.

GENERAL SUMMARY.

HYPSONOMETRY.

The great number of observations taken with mountain barometers, etc., have rendered the publication of the whole of the records unadvisable, some 8,500 readings of the different instruments having been taken, the field books forming two considerable volumes.

The mean of the barometer and thermometer at the more important stations is all for which there is space, and is attached hereto, condensed and tabulated.

For the more important mountains, etc., observations synchronous with those taken on the summit were made at near lower stations of established altitude. In the computation of all the altitudes, however, the observations at upper stations have been directly compared with the records of the truly wonderful and invaluable automatic instruments of the Dudley Observatory. It is my impression that this survey is the first in which the recording barometer, working day and night with mechanical precision, has been made the principal lower station, or station of record and correction. The position of the Observatory, directly south of the wilderness, has made it a most valuable station for corrections in hypsometric work in that region. The barometer at the observatory is 170 feet above tide in the Hudson river.

Prof. Hough has ably shown (*Annals Dudley Observatory*, vol. ii., pp. 234, 235) that the maxima and minima of atmospheric pressure occur contemporaneously along the same longitude, and also that the "local disturbance (viz., within the radius of one mile) may at any instant amount to ± 0.02 of an inch."

The field observations during this season corroborate in a remarkable manner these important conclusions, and seem to prove that for ordinary engineering purposes—or purposes of exploration at least—such a lower station, though distant, is sufficient. Only during sudden storms is there danger of great error, and that measurement is to be the most valued in which there is the least indication of local disturbance. I have reason to believe that altitude observations taken upon mountain summits are more reliable than those taken in the valleys.

The almost simultaneous rise and fall of the barometer at the Dudley Observatory, and at some of our stations in the heart of the forest, are truly remarkable, and have made it probable that upon the same

meridian, in fair, settled weather, if the time of observation were given by telegraph, so as to be absolutely synchronous, the barometrical curves would be very similar. The value of the barometer in leveling must neither be under nor over estimated. Our measurement of Mt. Marcy, the mean of seventy-two observations, indicates that its altitude is 5,333 feet above tide. Prof. Benedict, with syphon barometer, more than thirty years ago, found for it an altitude of 5,337 feet. It is remarkable that after so long a period, other observers, with different instruments, and with a far distant southerly station for corrections, should come so nearly to the same conclusion.

The careful remeasurement of Mt. Seward, made this season, gives for its altitude 4,348 feet, being about 100 feet less than my measurement of 1870. The instruments used in this last measurement were superior to those formerly employed, and the observations more numerous. The summit observations, as compared with those taken at Adirondack village, make no material difference. The height of 5,100 feet, attributed to the mountain in the geological survey, is therefore clearly an error. The barometrical observations on Mt. Santinoni, this season, indicate another error on the part of Prof. Emmons, who attributes a height of 5,000 feet to that mountain. My measurement makes it 4,607 feet, or nearly 400 feet less than the previous estimate, and is, probably, the first recorded actual measurement of the mountain.

Among the most important results in the hypsometry of the survey this season is the measurement by barometer of the height of several inferior mountains, which were not ascended; a thing which will at first, perhaps, appear impossible. The method, I believe, originated with myself, and, simple as it is, seems never to have been even previously thought of. It is applicable only to mountains inferior in height, and should only be applied to summits which are not greatly distant.

In ascending a loftier mountain, the course of a gorge or slide should be followed, where the opening through the forest will admit of a view of the surrounding country. When a height is reached upon the mountain side, apparently at a level with that of the inferior summit, whose height is desired, sights should be taken with spirit-level, and the mountain ascended or descended till the *apparent* altitude of the other mountain is found. The barometer should now be placed and observations taken in the usual manner. The distance of the mountain should be determined by telemeter or otherwise, and

the proper correction for curvature of the earth and for refraction afterward applied. An excellent opportunity for testing the value of this method was afforded in the case of Ragged Mountain, which is overlooked by Mount Seward. Ragged Mountain was first measured directly, by barometer placed upon its summit, and its height found to be 4,126.81 English feet. The same day it was again measured from a point on Mount Seward, carefully found by level, and though the readings of barometers and thermometers at the Dudley Observatory and at the station were different from those in its *direct* measurement, pressure and temperature having changed in the interval, the computed altitude was 4,126.41 feet; which, with a correction for curvature of the earth and refraction of $+.572$ of a foot, indicates the height of Ragged Mountain, by this method of combined spirit-level and barometer, at 4,126.98 feet, or about $\frac{17}{1000}$ of a foot higher than the measurement as made on the summit. This is an extraordinary result, and is surely exceptional, but it is nevertheless interesting. The method will save the topographer, working in a wilderness region, the toil of ascending all the small summits in order to ascertain their height, and in this way a great many inferior heights, which would not be otherwise taken, will be made known.

In military engineering the simplicity and value of this method make it of importance; for by means of it, the height of places and a knowledge of the commanding summits within an enemy's lines, may be readily determined by an observer upon the opposite mountain sides, with barometer, pocket-level, and, perhaps, a telemeter.

In the table of barometrical results the mountains thus measured are italicized, Andrew and North River mountains being the only other summits recorded. The stations marked with an asterisk (*), it is believed, have been first measured during this survey. It is undoubtedly the most extensive series of barometrical measurements ever made in that region.

The computations have been made by myself, and again and again repeated to insure accuracy. They were made by the adaptation of La Place's formula to English measures, as tabulated and given in the meteorological tables of the Smithsonian Institute, by Prof. Guyot.

I take this occasion to tender my thanks to Prof. George W. Hough for the meteorological data with which he has furnished me. In the invention of the recording barometer he has rendered a service to science which is only beginning to be appreciated. While advancing the work of astronomical discovery, meteorology has been placed upon a higher basis; for the records of the Dudley Observatory have

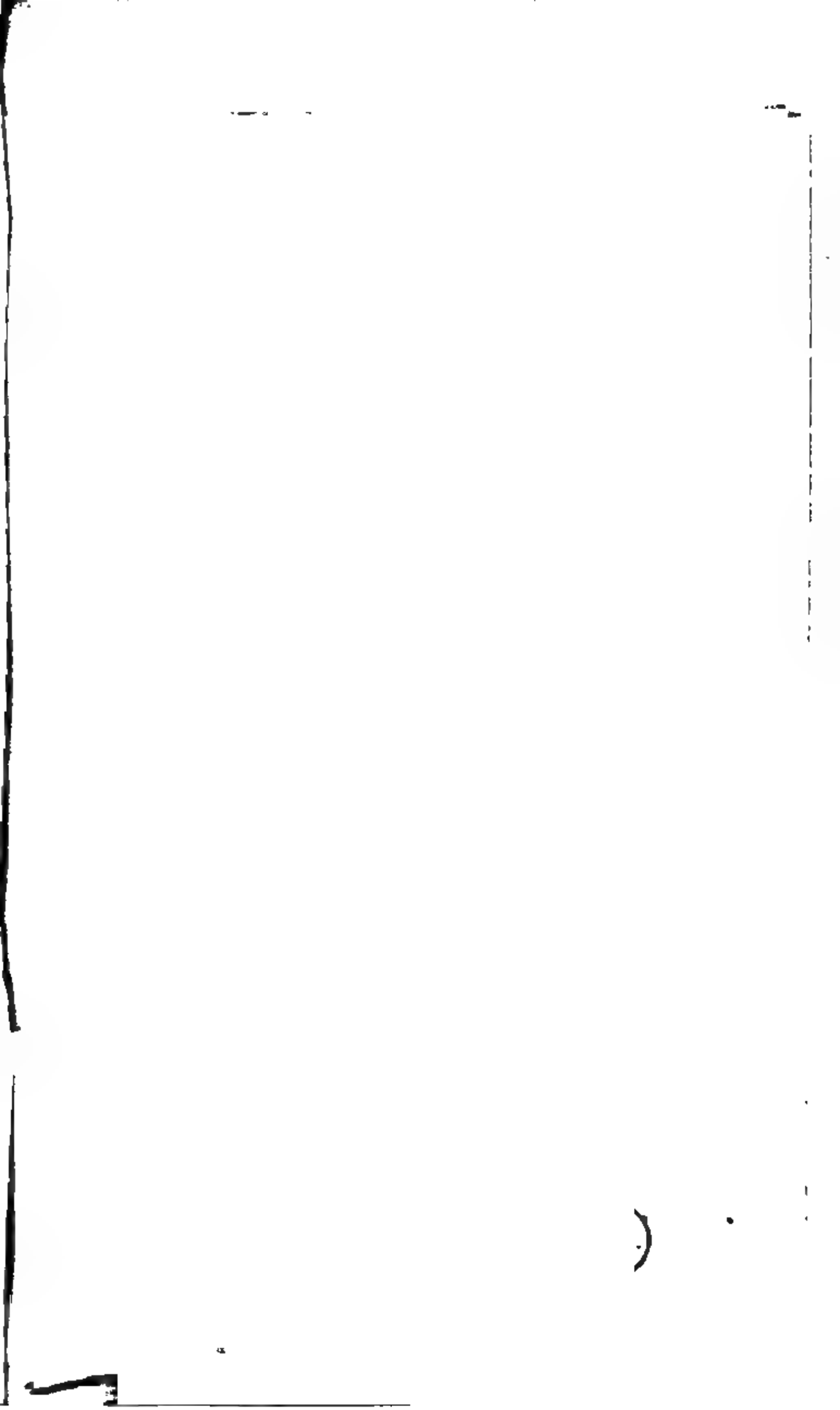
rendered more practically valuable the mysteries of the invisible atmosphere.

The recording barometer will, I have faith, be yet generally made the standard in hypsometry. If, in the course of a barometrical survey of the Adirondack region, superior instruments of this class, or the meteorographs of Prof. G. W. Hough, were placed at different stations on the borders of the region; at Crown Point, Plattsburgh, Ogdensburgh, Lowville, Utica, and centrally at Adirondack village, and their records compared with observations taken at different points in the wilderness, most interesting results might be expected. It is not too much to say that the mean of such a series of comparisons would indicate the altitude of interior stations with as great accuracy as is economically possible.

In the interests of meteorology and advanced science, I cannot too strongly urge the erection by the State of a small stone hut or hospice, near the summit of Mt. Marcy, to afford shelter, from sudden, severe and dangerous storms, to scientific observers. It would be of great interest to determine the maximum and minimum temperature, etc., by recording instruments left at such a station during the winter. The knowledge that such a protection against storm existed, would induce more tourists to visit the summit, and well repay the small expenditure, by bringing thousands of dollars into the State annually, which would otherwise be elsewhere expended.

TABLE OF BAROMETRICAL MEASUREMENTS. — (Condensed).

Date.	STATION.	FIELD OBSERVATIONS.			DUDLEY OBSERVATORY.			Altitude above tide. Eng. feet.
		Barometer.	Attd. Ther- mometer, Fahrenheit.	Temperature of air, Fahrenheit.	Barometer thirty-two degrees.	Temperature of air, Fahrenheit.	Hourly change, B ±	
1872.	July 27.....	28.959	57.5 (R. 33°)	68.0	29.710	75.53	— .008	940.53
	July 28.....	27.898	57.898 (R. 33°)	80.28	29.816	76.85	— .004	2,104.70
	July 29.....	27.895	57.895 (R. 33°)	77.00	29.803	76.17	— .010	2,085.16
	July 30.....	28.340	58.340 (R. 33°)	75.0	29.789	72.0	— .022	1,578.22
	July 31.....	27.870	57.870 (R. 33°)	76.0	29.788	76.75	0	2,085.50
	Aug. 1.....	28.985	58.985	60.16	29.786	65.57	— .008	2,004.97
	Aug. 2.....	28.811	58.811	73.58	29.778	73.94	— .006	1,737.59
	Aug. 3.....	28.185	58.185	65.0	29.758	73.36	0	1,894.02
	Aug. 4.....	28.401	58.401	47.50	29.838	66.8	+ .016	2,650.36
	Aug. 4.....	28.380	58.380	59.2	29.836	71.96	0	2,839.35
	Aug. 4.....	28.445	58.445	64.5	29.836	71.96	0	1,602.06
	Aug. 4.....	28.441	58.441	63.5	29.831	73.39	+ .002	1,711.74
	Aug. 4.....	28.380	58.380	59.2	.....	.....	.....	2,807.20
	Aug. 4.....	28.445	58.445	64.6	.....	.....	.....	.....
	Aug. 4.....	28.507	58.507	67.1	.....	.....	.....	.....
	Aug. 5.....	.....	58.56	81.37	20.044	77.04	— .016	1,721.43
1873.	Oct. 10.....	26.449	55.57	64.57	29.716	68.8	— .006	1,701.96
	Aug. 6.....	26.551	60.71	79.0	29.959	76.92	— .012	2,596.93
	Aug. 7.....	26.534	60.9	67.9	29.975	75.45	0	1,669.34
	Aug. 8.....	26.591	67.64	67.42	29.969	77.51	+ .010	1,670.11
	Aug. 9.....	27.744	81.58	81.0	29.932	85.74	— .012	2,098.69
	Aug. 10.....	27.943	68.32	81.31	29.932	81.15	— .016	2,403.40
	Aug. 12.....	28.183	71.5	71.16	29.792	76.50	+ .002	2,302.81
	Aug. 13.....	28.114	73.97	76.71	29.746	80.16	— .017	1,835.97
	Aug. 14.....	27.794	70.5	68.5	29.697	80.91	— .006	1,924.52
	Aug. 14.....	27.785	72.5	73.14	29.700	80.90	— .002	2,262.45
	Aug. 14.....	28.200	71.1	70.1	29.643	77.39	+ .002	2,126.25
	Aug. 15.....	28.043	(R. 33°)	79.75	29.643	83.05	— .006	1,622.37
	Aug. 16.....	26.918	61.4	60.4	29.779	83.05	— .014	1,917.07
	Aug. 23.....	27.667	60.0	66.52	29.834	75.78	— .014	2,252.77
	Aug. 23.....	29.905	68.7	66.0	29.784	71.14	— .005	2,278.59
	Aug. 23.....	27.697	60.0	66.07	29.784	71.14	— .006	91.40
	Aug. 23.....	29.905	68.7	66.0	.....	.....	.....	2,305.95
	Aug. 29.....	27.832	66.34	64.39	29.691	68.5	— .006	2,812.00
	Aug. 31.....	28.401	60.8	60.0	29.540	67.63	+ .002	1,837.73
Sept. 1.....	Bald Peak (Morlab)	27.877	68.73	63.54	29.747	67.25	+ .001	2,059.66
Sept. 4.....	Rustic Lodge (Whiteface) *	25.847	55.56	34.43	29.859	65.87	+ .001	2,080.20
Sept. 4.....	Wilmington village (synce.) *	26.905	54.16	54.09	29.859	56.87	+ .001	1,033.59



TRIANGULATION.

A sketch, showing the condition of the principal triangles measured and the extent of the country which they cover in the different counties, is annexed. There are few ill conditioned angles. The region within the limits of the primary lines is covered with a network of inferior angles, which are omitted in this sketch.

Commencing at Crown Point, the angles advanced westward show the means by which geodetic connection has been made with Lake Champlain. A few additional angles should be measured to complete the great quadrilateral and perfect the connection with the lake. Comparatively few of the mountains have been found properly placed upon the existing maps; and it has even been made probable that some of the old county or town lines are improperly located. It has been rumored that the northern boundary of the State—being the boundary between the United States and Canada—is at one point six miles from its true location. These are matters of importance and demand attention. The time is not far distant when a *precise* triangulation and geographical survey of the whole State will be required.

If, in the course of future surveys in this region, a base line of verification be required, the frozen surface of Long Lake—a true water-level—is recommended. Copper bolts, sunk in the rock at the water edge in summer, during the progress of work, would show the exact points sighted to, from the mountain summits—Mts. Seward and Santanoni; and it would then only be necessary to visit the lake when frozen and measure the base. An idea of the feasibility of this operation may be obtained by an examination of the triangulation sketch.

TOPOGRAPHY.

The reconnaissance maps of topography, made during the season, are ninety-eight in number. The mountains visible, and their several peaks, are as properly placed upon them as time and weather permitted; and the extensions of their ridges developed by horizontal contour lines, afterward filled in with vertical hatchings. The course of numerous streams and rivers, wherever advisable and possible, appear upon these maps, together with many lakes or ponds, whose forms or location required correction. These maps supply the place of plane table work, and will be used in locating the topography upon the large final map.

A specimen of a portion of a reconnaissance map, showing a mountainous region in Warren county, is annexed.

Upon the map-sketch of triangulation will be found a blue line, which indicates approximately the position of the summit of the watershed of the Hudson, or the divide between its sources and the waters which flow to the St. Lawrence river. This is a matter of interest in connection with the canals and general water supply. It may also be of value in the determination of the area of forest which it is necessary to preserve in order to protect from evaporation the springs and streams which are the sources of the Hudson.

CONCLUSION.

The results of the survey are numerous and interesting. The vastness and wildness of the region is the better appreciated when, at this late day, we are able to find within it mountains from 3,000 to 4,000 feet in height, nameless, unascended and unmeasured. The incorrectness of the existing maps is understood, when we discover that the famous Blue Mountain or Mount Emmons is not 4,000 feet high (as represented), and that it is apparently inferior to the lofty neighboring summit known as Snowy Mountain, which rises to an altitude of 3,859 feet, where on the maps is shown a blank.

Again, while geographers have expatiated upon the great elevation (for this region) of the lakes Colden and Avalanche, in Essex county, a little more than 2,700 feet above the sea, they have gone blindly on, unaware that far in the south portion of the woods, the Cedar lakes—from whose shores the snows of winter depart slowly—lie, on the great and most elevated plateau of the wilderness, at an elevation of 2,493 feet; not flowing to the St. Lawrence, as represented upon their maps, but to the Hudson river.

As a matter of technical geographical interest, the discovery of the true highest pond-source of the Hudson river is, perhaps, more interesting. Far above the chilly waters of Lake Avalanche, at an elevation of 4,293 feet, is *Summit Water*, a minute, unpretending tear of the clouds—as it were—a lonely pool, shivering in the breezes of the mountains, and sending its limpid surplus through Feldspar brook to the Opalescent river, the well-spring of the Hudson.

But I may not enlarge upon these subjects. In the hasty journal of the survey, and in the tabular statements of altitudes taken by mountain barometer, will be found a great number of new results.

Many mountains still remain barometrically unmeasured, though their altitude may be trigonometrically computed. Mt. Dix and Mt. McIntyre, though they have been previously ascended, are among the number unmeasured. The appropriateness of the new names

Mt. Redfield, Mt. Street and Mt. Adams given to summits hitherto unnamed, will be appreciated by those acquainted with the written history of the region.

It is now a question of political importance whether the section covered by this survey should not be preserved, in its present primitive condition, as a forest-farm and source of timber supply for our buildings and our ships. The deprivation of a State of its timber is a grave error in political economy, and at this time when the western States of the Union, feeling their deficiency, are laboriously planting forests, it behooves us to see to the preservation of those with which we are spontaneously blessed.

The question of water supply, also, is intimately connected with this proposition. I have elsewhere expressed my opinion that within one hundred years the cold, healthful, living waters of the wilderness—the home of the brook trout, a fish that cannot exist in an impure stream—will be required for the domestic water supply of the cities of the Hudson River valley. With the exception of the Croton watershed, which, however, has its limits of supply, almost all the available water falling into the Hudson below Albany is the surface drainage of a settled and well farmed region, inferior in quality, often charged with the deleterious products of paper-mills and factories; being, in short, from watersheds over which the public has no control. It is not possible to protect from defilement the waters flowing through a settled country. Every storm washes the fields and carries to the streams, in solution, the strength of the manures of the agriculturist and much-dissolved mineral matter derived from the plowed soil of the fields. The trees also are cut away to the water's edge, and the shallow streams, lacking the volume and depth, which, in great rivers, renders the exposure of the surface of the water to the sun a mere superficial and immaterial matter, now, heated and evaporating, become nauseous and slimy with a growth of decaying vegetable organisms. The streams of the wilderness, on the contrary, are sheltered from the sun by the thick overhanging foliage of the forest. The more extensive underlying rocks of the region being generally gneissoid, contain little soluble matter; and the pure water from the clouds, after gaining carbonic acid by exposure to the air in the breezy lakes, comes brightly foaming over many a picturesque rapid and waterfall to the Hudson and the sea. A stone dam thrown across the Hudson above its junction with the Schroon, while securing water free from deleterious substances, would afford the head of water necessary for aqueduct purposes; the superfluous waters of the river escaping at the center

of the dam, through a flume, would be sufficient for the purposes of the lumberman or the "river driver." The Sacondaga river above Northville is pure and of great value, and could be treated in the same manner.

The great expense attending this project is the aqueduct, which, if extended to New York city, would be more than 200 miles in length. When we consider, however, the Roman aqueducts (the *Aqua Marcia*, sixty miles in length, built 145 years before Christ, and the numerous other aqueducts, some of which are in use to this day; the aqueduct of the inferior town, *Civita Vecchia*, twenty-three miles in length; in Provence, that which supplied Nismes, crossing deep valleys at a height of 188 feet, conducting the water for a distance of twenty-five miles), the aqueduct proposed will not appear chimerical.

In Scotland, the city of Glasgow is supplied with water brought from Loch Katrine, distant twenty-six miles; furnishing 19,000,000 gallons a day. This aqueduct was completed in 1858.

In France, a covered conduit, eighty miles in length, conveys to Paris 8,000,000 gallons of pure spring water, daily, from the head of the Dhuis, in Champagne; and progress is being made upon the Vanne aqueduct, 104 miles in length; estimated to yield 22,000,000 gallons a day.

In England, the water furnished London being inferior in quality, a new source of supply, from the head waters of the River Severn in North Wales, distant 173 miles, has been suggested. The cost of the aqueduct is estimated at about \$43,000,000.

All these works are undertaken for the sake of procuring *pure water*, for, though each of the cities above mentioned has a river flowing past it, from which water could be obtained by steam pumps, the people of those cities are not satisfied, and demand such a *pure* supply as will secure them from cholera and other epidemics.

If the present ratio of increase of population continues, the Hudson River valley must eventually contain one long, marginal city, extending from the Mohawk river to New York. The Adirondack Wilderness is the only watershed which will afford a sufficient supply of pure water for such a population as will then exist.

In this country the Croton aqueduct, thirty-eight miles in length, has shown the practicability and value of this method of supply. Allowing that 150 miles of the proposed Adirondack aqueduct be built at the expense of the cities of New York and Brooklyn, and fifty miles at the expense of Albany and Troy, we have the major portion

of the work complete; while ten other towns, each worthy of an aqueduct ten miles in length, would render their aid to the enterprise. Although this source of water-supply cannot, for various reasons, be made immediately available, yet, unless action be taken at this time, and the forests protecting and purifying the waters be themselves protected, there will be no opportunity in the future to accomplish this great work.

Such vast enterprises are of slow progress. If this aqueduct were commenced in these days, long before its completion the failing water supply, would rouse the people to a clamorous demand that it be finished. For the present, the protection of the forest is all that is required, and unless this be done we shall incur the merited scorn of posterity.

In consideration of the hardships and exposure experienced in this exploration, it may be proper to remark that not a particle of alcoholic or fermented liquor of any kind—even for medicinal purposes—was used, carried or permitted to be used or carried by any member of the party. It was a rule against which some of the men employed murmured, but they were only able to break it surreptitiously. The result has been subordination, steady work, health and success.

The survey has now progressed far toward completion. The measurement of additional angles, with some other work, is contemplated during the coming season. Accompanying the report will be found the map, sketches of primary triangulation and reconnaissance, therein referred to.

All of which is respectfully submitted.

VERPLANCK COLVIN.

ALBANY, *March 10th*, 1873.

SIXTH ANNUAL REPORT

OF THE

MANAGERS

OF THE

Hudson River State Hospital,

For the Year 1872.

TRANSMITTED TO THE LEGISLATURE MARCH 11, 1873.

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I N S E N A T E ,

March 11, 1873.

SIXTH ANNUAL REPORT

OF THE

MANAGERS OF THE HUDSON RIVER STATE HOSPITAL

POUGHKEEPSIE, *February* 17, 1873.

To the Hon. J. C. ROBINSON,

President of the Senate :

SIR.—Herewith is submitted the annual report of the Managers of the Hudson River State Hospital.

Very respectfully yours,

ABIAH W. PALMER.
CORNELIUS R. AGNEW.
AMASA J. PARKER.
EDWARD L. BEADLE.
JOSEPH HOWLAND.
CHARLES WHEATON.
ODELL S. HATHAWAY.
JAMES ROOSEVELT.
FREDERICK D. LENTE.

OFFICERS OF THE HOSPITAL.

MANAGERS.

ABIAH W. PALMER.....	AMENIA.
CORNELIUS R. AGNEW.....	NEW YORK CITY.
AMASA J. PARKER ..	ALBANY.
EDWARD L. BEADLE ...	POUGHKEEPSIE.
JOSEPH HOWLAND.....	MATTEAWAN.
CHARLES WHEATON	POUGHKEEPSIE..
ODELL S. HATHAWAY	NEWBURGH.
JAMES ROOSEVELT.....	HYDE PARK.
FREDERICK D. LENTE.....	COLD SPRING.

TREASURER.

JAMES H. WEEKS.....	POUGHKEEPSIE.
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RESIDENT OFFICERS.

J. M. CLEAVELAND.....	SUPERINTENDENT.
A. O. KELLOGG	ASSISTANT PHYSICIAN.
ROBERT ROBERTS	STEWARD.

REPORT.

In accordance with the "Act to organize and establish the Hudson River State Hospital," the managers thereof respectfully submit to the Legislature the following

REPORT.

The hospital was opened for the reception of patients on the 20th of October, 1871. From this date to November 30th, 1871, the end of the hospital year, seven patients were admitted.

The admissions for the year ending November 30th, 1872, have been 212 in number; 112 men and 100 women. The whole number treated this year was 219.

Ninety-three have been discharged, fifty-four men and thirty-nine women, leaving 126 on our record at the end of the year.*

The recoveries for the year have been forty-five; twenty-five men and twenty women. Eleven were discharged improved; twelve unimproved, and twenty-four died.

The following brief statement gives the progress made during the past year in the work of construction:

The mason, with the assistance of his apprentice, has set the water-table of section four, has completed the beam-filling of the first story, and covered all the walls for protection against the winter. He has turned the "ombra" first-floor arches of brick, resting on iron beams, and under them has constructed an ample temporary vegetable cellar. He has also put up in this section an extra chimney-breast. The pumping-house, at the river, has been lathed and plastered in both stories, and comfortable rooms have been prepared in the attic, and are

* There are in the hospital at the present time (February 17th), 159 patients.

now occupied by a family. A partition has been put up in the building heretofore used as an office, and it is now occupied by employes of the hospital. Some necessary repairs have been made to the tenements, on the grounds and to the green-house. An oven has been built in the basement of section one.

In the stone-cutting shop have been prepared nearly all the dressed stone required for section four, and the ashlar for section five. There is also on hand most of the rubbed gray-wacke (uncut) for section five.

From the quarry, during last winter and spring, a quantity of foundation stone more than sufficient for another section was got out.

The carpenters, besides laying and bridging the first floor beams of section four, have prepared all the window-frames and door frames for this section. The wooden sash-frames and a large quantity of lumber for flooring and roofing have been milled. An ice-house has been built near the reservoir, large enough to supply the hospital needs of 600 patients. The fan-house, and fan-house corridor have been completed. A shed for the storage of 200 tons of coal has been put up near the pumping-house. Two shelter-houses have been erected, one for each exercise yard, and the yards have been separated by two lines of wooden fence. The temporary laundry-room in the boiler-house has been ceiled, and two ventilators have been inserted. The old gate-house at the entrance, which was much out of repair, has been put in good condition, and the stable roof, which leaked badly, has been newly shingled. Other work necessary to the preservation of tenement structures and outbuildings has been done. In addition to these operations, the carpenters have made all the dining-room tables used in the wards; also the bed-room tables, wardrobes, wash-stands, and wooden covered bedsteads, and have done, besides, much other work.

In the machine shop for iron work, all the iron window-guards (225 in number) have been made for section four; also all the first story iron window-sashes (seventy-five), while those

for the second and third stories are under way. Between thirty and forty iron bedsteads have been made. The iron railings of two stoops have been made in the shop, and have been put up; also all the iron window-guards and door-guards for the boiler-house, engine-room, gas-house, and pumping station. The shafting has been put up in the fan-house corridor and in the laundry. The steam-pumps at the river and the boiler-house have been supplied with new valves.

The teamsters and laborers have been employed in hauling and in piling timber, lumber, brick, stone, coal, ice, and in filling up the settling of the pumping-pipe trenches.

We cannot conclude this brief summary of operations without an expression of regret that the inadequacy of the appropriation of 1872 prevented the completion of section four. The fact cannot be too strongly emphasized, that, in a building so extensive as that which is entrusted to us, preparation for a season's work must be made the previous autumn and winter. It is essential to economy and success that the excavation be completed and the masonry begun in April, and that the long days and bright cool weather of May and June should see the brick-work well out of the way, so that the covering-in and slating may be done by the first of October. The building could then be finished by the middle of the following winter, and be ready for occupancy. But to do this is impossible if the ordering of material and the putting it in shape must await a late appropriation, say at the close of April or the beginning of May. The stone for foundation walls should be quarried in the winter, as should the mountain graywacke for window-heads. The latter is hauled over rough roads from quarries near the base of the Catskills; and its transportation, when snow is on the ground, is comparatively easy. If this stone is not ordered until spring, great difficulty and delay are experienced in filling the order. The Ohio stone used in window-sills, window-heads, belt-courses and cornice, cannot be delivered until navigation is resumed on the lakes and our canal is opened. Orders for this stone are rarely filled before June. Again, grant that our material for stone-work is on hand the

previous fall, but that we have to postpone dressing it until after the appropriation is made. To get ready under these conditions for the work of construction, even *late* in the spring, would require a larger force of stone-cutters than we could profitably employ, and would entail additional expenditure for more shops and tools. It would give us, also, a poorer class of workmen,—for the best men seek and find employment on work which lasts the season through. Even under the best conditions compatible with this plan, the stone could not, for want of time, be prepared for early spring work. We can get brick in the spring more easily than we can get stone, but it is a well-known fact that its price then is several dollars higher, and that the market is always upward until the first of July. Moreover, bricks made in the spring months are, owing to the rains, always inferior in quality to those of kilns burnt in September and October. Our brick should be delivered in October and November, and be properly protected against the winter's frost. It seems hardly worth while to call attention to the necessity for seasoned timber and seasoned lumber, and to the difficulty if not the impossibility of procuring the same unless ordered a season ahead. Our yellow pine flooring should be cut to order from the untapped forests of Florida, and should have nearly a year's seasoning under a southern sun before being put to its destined use. It is essential to the permanence and durability of the building, in all its parts, that our timber and lumber be thoroughly seasoned. Thus, only, can we avert those expenditures for "repairs," which once begun never end. In our building, the window-frames and the door-frames are built into the wall, and not nailed into openings left by the masons; therefore, before any wall can be put up, these frames must be ready, or our force of brick-layers will have nothing to do. The same arguments may be urged in reference to preparation of the various iron-work used in the hospital, of the anchors built into the masonry to hold the walls, the window-guards and iron window-sashes, the iron sashes themselves, the moulded bars of which are imported from England, the iron mouths for the heating and ventilating flues, and the apparatus for heating.

It is a duty not only to ourselves but to the community at large, that we take some notice of remarks in regard to the Hudson River State Hospital, which appear in the late report of the State Comptroller.

In the opinion of this officer, if we understand his position, our board and others of like character are unhappily constituted; composed, as he says, "usually of professional or business men, who seldom or never meet, or who, if they do come together, generally delegate to others the powers and duties they should themselves assume and exercise." Hitherto we have supposed that, in enterprises like ours, there is a positive and great advantage in securing for the public service a combination of professional knowledge and business talent. We have been accustomed to think that when, for instance, a college or a hospital is to be established, it is wise to call in the accomplished expert, the professor, the physician or the surgeon, one whose home and the grand study of whose life have been and are still to be the college or the hospital, and to learn from him what should be sought and what avoided in the work proposed. And when the carefully considered plan is to be put in execution, who so likely to do it thoroughly and well as the efficient, careful and exact man of business? For the defective composition and inefficient action of these boards, the Comptroller provides a remedy, so far as the great State charities are concerned, in his suggestion for a State architect, one who is to plan, build, modify and equip all the State asylums, hospitals and reformatories, thus bringing the whole of them, with their widely diversified conditions and requirements, under the control of one unbending formula.

We are virtually charged in this report not only with a general dereliction of duty—a reproach which we share with many other trustees—but also with extravagance and waste in the particular work assigned to our care. We deny and repel the indictment in both of its counts. If these representations are well founded, the facts can be demonstrated. If the case be otherwise, justice and honor demand their withdrawal.

In the first place, our records bear witness that, from their

appointment down to the present time, the managers of the Hudson River Hospital have held special as well as regular meetings for the dispatch of business. That these meetings have, in the main, been well attended, always without cost to the hospital,* and, in the case of some members, to the serious detriment of business interests at home. They show that no important step in the entire progress of the enterprise has been taken that was not in accordance with the previous decision and final approval of the board. That an executive committee of five efficient members, being an actual majority of the whole board, has held regular monthly meetings on the premises for the direction and inspection of the work, and that, when work of special importance was going on, the meetings were more frequent.

To repel, then, this allegation of unfaithfulness is no more than we owe to reputations dear to ourselves and our friends. It is due, moreover, to those gentlemen of honor and integrity, whose fidelity to duty, as past members of our board, was always conspicuous; and especially is it due to the memory of one who no longer lives to resent a stigma on his name. The Honorable William Kelly, is numbered among the noblest and purest of our public men, and we who knew him as a manager from the first, can never forget how warm and constant was the interest which he felt in the hospital, nor, can we cease to regret the loss of his able and judicious co-operation.†

Another impression which the report was evidently intended to make, is that of wasteful extravagance in the construction of the Hudson River State Hospital. By the act of March 16, 1867, which established and organized this institution, the

* In visiting the hospital the managers have always paid their own traveling expenses.

† Mr. Kelley was, from the first, chairman of the committee on plans. He was also chairman of the finance committee, and often expressed his high appreciation of the exact method and perfect accuracy of all the hospital accounts. To the same effect is the following extract from the annual report of the present comptroller's distinguished predecessor in office, Judge Allen :

"The accounts rendered by Dr. Cleaveland, who is the superintendent of the building, exhibit great method and business capacity, and are as systematic, specific and accurate as could be desired, giving evidence of economy and integrity in the expenditures."

managers were authorized to adopt the plans of the Utica asylum or of the Ovid asylum, or to procure other plans, drawings and specifications, for the construction of the hospital and the improvement of the grounds ; and they were empowered to contract for the erection of the buildings in accordance with such plans and specifications, and on such terms as they may deem proper,—provided such plans and specifications, contracts and the terms thereof, shall be approved by the Governor, Comptroller and Secretary of State. In due time, the ground plan of a structure was submitted to the managers, and after careful examination was adopted. In conformity with it, accomplished architects (Messrs. Vaux, Withers & Co., of New York), prepared drawings and elevations. These drawings, with plans and specifications, were then submitted to the three State officers named in the act. After nearly a week's inspection and consideration they were returned with the official sanction. It was this well-considered and legally adopted plan which the managers of the hospital have endeavored to carry out.

At different times during the progress of the work, the Governors of the State, the Comptrollers of the State and others in authority have visited the hospital, have been consulted in regard to important operations, and have given their approval. The costly enterprise of providing a sufficient water supply was referred to the State Comptroller, and at his instance the work was put under the general direction of the deputy State Engineer, S. H. Sweet, Esq. At all times it has been the aim of the managers to act in strict conformity with legal requirements.

It is true that the work has proved expensive. We have stated heretofore, and more than once, some of the occasions for such a result. In the first place, it must be borne in mind that ever since the work was commenced it has taken, in this section of the State, from three to four dollars to build what one dollar would build before the war. The passage of the act commonly called "the eight-hour law," in April, 1870, has greatly increased the expense, its operation on our pay-

rolls in less than two years after its enactment having cost the hospital nearly \$70,000.* The lateness of the legislative appropriations have constantly placed us at a disadvantage in procuring workmen and material, while it has actually curtailed the working season. It must be remembered too that the price of labor and building materials in Poughkeepsie never differs essentially from what it is in New York, a fact of no small moment, when the cost of building on the Hudson is compared with its cost in the interior and western portions of the State.

In estimating the cost of the Hudson River Hospital as compared, for instance, with the asylum at Ovid, it must be borne in mind that the two institutions are designed for two classes of patients very unlike in their character and requirements. Among the chronically insane, for whose accommodation the Willard Asylum has been erected, the proportion of patients who require separate rooms and special provisions is exceedingly small. The great majority may be placed in large apartments containing many beds. The hospital which, like ours, is intended for the treatment of acute insanity, must consist principally of small separate bedrooms. This necessity is due to the fact that so many patients of this class are highly delirious, noisy, violent, destructive or homicidal. To make such rooms at once comfortable and pleasant, and perfectly secure against all attempts at escape and injury, is no easy or cheap achievement. That it must cost considerably less to construct a ward for fifty patients, all of whom may be comfortably disposed in two or three large apartments, than it would be to make a ward for the same number with fifty different rooms must be evident to all.

Another very influential consideration consists in the fact that our hospital, thus far, has been built, not under the contract system, but by honest, if short, days' work. If the cost of building under the contract system is reduced, to that extent, you may safely affirm, is the work done less thorough

* Mr. Mullett, the architect of the buildings erected by the general government, estimates the cost to the United States of the eight-hour law, in the New York post-office alone, at a *half a million* of dollars.

and valuable. It is well known that dealers, for the purpose of securing sales, are in the habit of allowing commissions to contractors. These commissions, which add nothing to the value, do add largely to the cost of the work. This expense, at least, we have avoided. In the entire expenditure of the Hudson River State Hospital, not a dollar in the form of commissions, bonus or bribe has been accepted or allowed.

It would have relieved us from an infinity of trouble and care, and, at the first showing, might have saved the State some money, had we put up our hospital through the agency of contractors. But, in that case, no precautionary care in the drawing of agreements, no possible minuteness and exactness of specification, no amount of architectural supervision and watchfulness would have insured to us the thorough built and admirable structure which it is our privilege and pleasure to show to-day. And here is the very gist of the question. The hospital has cost money, but it is worth the money. It has been seen and examined and warmly commended by architects, engineers and builders of wide experience and unquestioned skill, as well as by medical experts, who well know what hospitals are and what they should be. Such investigations, no matter how close, provided the examiners are competent and candid, we request and court. Of candid judges, we trust that many might be found. It is not so easy to secure those who are perfectly competent to such a task. A hospital, it must be remembered, is a structure of peculiar character. Its needs and conditions are many and various and specific; and this is eminently true of a hospital designed for the cure of acute insanity. To learn what these wants are, and to know how they can best be met, is a work of time, of patient study and of multiplied experiences. There is many a farmer, of sound sense and good judgment, whose opinion on any matter that has come within the scope of his thought and observation may be safely relied on. But who would select a committee of farmers to decide on the sailing and fighting and resisting qualities and the general sea-worthiness of a ship of war?

In connection with the Comptroller's recommendation that the construction of all our State asylums and hospitals should be entrusted to a single State architect, it may be profitable to inquire what success has attended this plan elsewhere. In the neighboring province of Ontario such a functionary actually exists under the style and title of "the architect of public works." Among the monuments of this gentleman's skill is a large asylum for the insane, in the city of London and province of Ontario. This building has been occupied for a little more than two years. We take the following notice of this asylum from the last report of J. W. Langmuir, Esq., "general inspector of asylums, prisons, etc., for the province of Ontario: "

"Owing to the bad plastering throughout the asylum, over a sixth of the entire ceiling surface has fallen down. The wood-work and flooring are of the worst kind, both in respect to material and workmanship, and the painting generally throughout the asylum is very inferior. The windows are so badly fitted that not over a half of them can be opened without sending for the carpenter. If the presence of the most offensive smells and odors can be taken as an evidence of defective ventilation, then the system adopted in the London asylum is the worst that could have been devised. After a careful examination, extending over eighteen months, and after many visits to the dormitories and wards during the day and the night, I can only come to the conclusion that the means now existing of ventilating the building are utterly defective and inadequate, and that the most urgent necessity exists for the introduction of a proper system. Should an epidemic appear in the asylum at the present time the consequences could not but be disastrous. * * The ordinarily vitiated atmosphere of the institution is frequently rendered still worse by a short supply of water for sewerage and lavatory purposes." This is ascribed to a dependence on scanty wells and constantly breaking pumps. Many of the drains are so small and so badly laid that they are perpetually becoming choked.

All these statements are strongly confirmed by the special report of Dr. Henry Landor, the medical superintendent of the

London Asylum, who says: "It is sufficient now to state that the drainage is still unremedied, the ventilation unimproved, the wood-work as bad as can be, and the plaster falling everywhere. The flooring of kitchen and laundry speaks for itself. The windows are immovable without a carpenter constantly at work. The shutters are worthless, and the pumps are nearly always out of repair." This document also informs us that the inmates of the asylum, both patients and attendants, are afflicted with a chronic diarrhea, the natural and necessary consequence of breathing foul air and drinking bad water, and that all who are sane live in perpetual dread of fatal disease, the result of vitiated atmosphere, or of being burned up for the want of means to extinguish a fire.

When our Canadian neighbors shall have repaired and remodeled their asylum—shall have relaid all its floors, replastered all its ceilings and walls, repainted all its interior, reconstructed all its windows, *cut* in all the air flues, which should have been *built* in, compelled the life-giving and life-sustaining atmosphere to move freely through every corridor and hall, and fill to repletion every ward and every room—when an inexhaustible flow of fresh and pure water shall be so laid on as to meet the utmost wants of a class of patients whose need of that element is constant and immense, and also so as to provide an all but absolute security from destruction by fire—when they have done all this (and this is no more than humanity requires), and shall have paid the bills, they will know just how much they have saved by employing a State architect so plainly ignorant of the first conditions of the problem which he undertook to solve.

We object, in the most decided manner, to that representation of the Comptroller, which, under the circumstances, will necessarily be considered as having reference to this institution, and which implies that its cost per patient will not be less than "\$7,000." Our opportunities for the formation of a correct judgment on this point lead us to believe that the ultimate cost *per capita* will be less than half of the sum named. Of course, every estimate of this kind must rest, in part, on future

conditions, the nature of which is, to some extent, uncertain. With our present data, and after a careful consideration of probabilities, we feel prepared to show the entire reasonableness of the opinion just expressed.

The Comptroller intimates that the same thing which in one place has cost \$7,000 has been obtained in another place for a seventh part of this sum. He must here refer to the Willard Asylum, that being the only other structure of the kind which has been put up contemporaneously with our own, and, consequently, the only one with which he could properly make such comparison. We have already shown why an asylum like the Willard, built expressly for the chronic insane, ought to cost less than a hospital like ours designed for the safe keeping and curative treatment of patients in the acute stages of brain disease. There can be no just comparison of the two institutions if this important consideration is left out.

And this is not all. Of the six hundred insane persons now in the Willard Asylum, one-third are housed in the old Agricultural College. This solid and well-constructed edifice, which cost, years ago, a good deal to build, and which would have cost several times as much had it been erected within the last seven years, so came into possession of the State that (with the exception of \$20,000 expended in refitting it) it does not appear at all in the estimated cost of the Willard Asylum. This is well enough when that institution is alone in question. But is it right, is it fair, to ignore such a fact when the object is a financial comparison with a sister institution?

There is something more to be said in this connection. The reasoning of the report under consideration goes upon the ground that the location of a building makes no difference in the cost of construction. In other words, that land and labor and material cost no more in one part of the great State of New York than they cost in any and every other part of it. It is unnecessary to demonstrate the fallacy of such a position, or to appeal to statistics to prove that prices are not the same in every part of the country, and that, from the very nature of things, they cannot rule alike everywhere. The fractional dif-

ferences, which seem inconsiderable when we look at the cost of a single day's work, of a single foot of lumber or of stone, or of a thousand bricks, will swell to formidable proportions when the aggregates mount up to hundred thousands.

We are aware that by some persons the Hudson River Hospital is regarded as a much better-looking edifice than is needed for such a purpose. A building erected mainly for the poorer class cannot, they say, be too plain. To spend money in such a case, only to gratify the eye, is to waste it; in other words, it is sheer extravagance. For ourselves, we must acknowledge our inability to so view the matter, and our full persuasion that such opinions are not in accord with prevailing sentiment. We hold that no edifice of a public nature, and especially if conspicuously placed, of large dimensions and of a permanent character, should be put up in disregard of the æsthetic element; not that *the beautiful* should ever take precedence of *the useful*. On the contrary, the latter quality is a preliminary and essential condition of the former. No imitation of the best Grecian models; no reproduction of the finest Byzantine or Gothic architecture can make a structure beautiful, if it clearly fails to answer the end of its erection.

When the duty of building on the banks of the Hudson a hospital for the insane was intrusted to us, our first inquiries had reference to the kind of structure needed, to the number, size and shape of rooms required, and to the structural position and arrangement which would be most likely to secure the all-important conditions of good light, good air and good drainage. The value of perfect accessibility from without, of easy internal communication for physicians and attendants, and of the utmost possible seclusion for excitable and violent patients, was not overlooked. The general plan thus adopted, after much and careful consideration, was submitted to Messrs. Vaux, Withers & Company, an architectural firm of high standing, by whom the drawings were prepared, Mr. Withers designing the elevation. While it was their first aim, and has been their constant endeavor, to put up a hospital for *use* and not for *show*, the managers confess to the fault, if fault it be,

of wishing and of trying to make it such an edifice as will not, by its ugliness, reflect discredit upon the State, and become a perpetual eye-sore to every person of ordinary taste.

In regard to its interior, as a general thing, nothing can well be plainer. Every member and feature wear, indeed, as we intended that they should, the aspect of utility, of safety and of durability. These qualities, essential as they are in such a structure, impart to the whole interior an air of fitness for its end, which cannot fail to please every well instructed eye. To make the apartments of such a hospital lightsome, cheerful and homelike has long been considered desirable, in view of the happy and restorative influence which such surroundings have been found to exert. To the extent of having attempted something in this direction, we must also plead guilty.

For the material of our walls we chose a substance less costly than sand-stone or marble, than granite or iron, but no less able to resist the destructive action of the elements, fire itself not excepted. In each hospital wing three engaged towers, rising slightly above the main roof, give entrance to the building, and, while indicating this office to all who approach it, agreeably dispel the unpleasing uniformity of very long, continuous, horizontal lines. Bricks of excellent quality and laid in the best manner constitute the wall-face. Between the plain, modest cornice and the water-table, both of light-tinted sand-stone, are several narrow band-courses of the same material. The door-heads and window-heads are also composed of this stone, with dark blue-stone sections interposed. This is the extent of our ornamentation. It gives diversity and brightness to the whole exterior, and relieves the eye, which would weary of a vast, monotonous, red expansion. And this ornament, it should be added, is all of a constructive character. It is not stuck on. The stones which form it are, for the most part, flush with the wall-face—an integral and connecting portion of the solid structure. With a few insignificant exceptions, columns and mouldings and carvings, so conspicuous in most of our public buildings, and so costly, have no place in the Hudson River Hospital. It has a beauty, certainly, but it is of the severer kind and of the most enduring character.

The following synopsis of expenditures upon the work during the five years ending November 30, 1872, is compiled from the general classification of expenditures; the latter being compiled from the classified analysis of vouchers—all of which are on file in the Comptroller's office.

Masonry	\$386,140 81
Carpentry	138,135 18
Iron-work	72,107 24
Roofing	15,472 84
Glazing and painting	17,359 13
Total expended upon hospital structure....	\$629,215 20
For hospital equipment, heating, maintenance of patients, medical supplies, books, printing and stationery, laundry and equipment, fire apparatus, etc.:	
Total hospital equipment and maintenance.....	87,521 05
For wharf, roads, bridges, grading, excavation, exercise yards, fences, tenements and outbuildings, farm and garden expenses, stock, feed, implements and seeds, etc.:	
Total expended on real estate	77,869 26
For architects' fees, salaries of engineers, book-keeper, clerk, watchmen, office expenses, printing, stationery, traveling expenses, postage, express and telegrams, stable furnishing, stock and feed, general and incidental expenses:	
Total general expenses.....	77,350 79
For engine, boiler, machinery, tools, work-shops, temporary water-supply, etc.:	
Total plant	43,993 46
For reservoir, valve-houses, water and sewage pipe, crib and pile work, pumping-house, duplex pumping engine, boiler, engineering and water-works maintenance:	
Total water and sewage works.....	139,100 15
For boiler-house construction, steam engine, feed pump and three boilers, gas-house construction and gas apparatus:	
Total engine, boiler and gas-houses.....	19,804 10
For chimney construction, air-duct construction and fan-house and corridor construction:	
Total chimney, fan-house and air-duct.....	15,463 58
Total expenditures.....	<u>\$1,090,317 59</u>

In regard to the efficient management of hospitals, and especially of those which are intended for the insane, and also in regard to the best way of securing for them thorough supervision and control, we cannot convey our own settled con-

victions in better words than the following from a recent publication. They are found in the closing report of a distinguished physician, who is about to leave the superintendency of a State institution in which he has been eminently successful, for a seat in the councils of the nation.*

“The proper internal organization of hospitals for the insane is now well understood. Efficient, conscientious, resident officers must always be the first great reliance. No matter what else may be done, it will be found that placing the right persons in these official positions, and giving them a proper support in the performance of their duties, will be essential to the success and usefulness of such institutions.”

“For outside supervision, a board of trustees selected for their high character as citizens, and general fitness for their duties, is the proper body for this purpose. Having no pecuniary interest in the institution in any way, rendered familiar with its workings by frequent visits, and actuated by the highest motives to promote its usefulness and the interests of its patients, they form the strongest guarantee that all possible good will be effected and no wrong tolerated. Regular visits at short intervals from such a board are infinitely more thorough and efficient, and their supervision is more reliable and intelligent, than any public commission without special qualification for their duties, visiting at long intervals, and selected, probably, for political rather than for humane reasons, could be.”

All of which is respectfully submitted.

ABIAH W. PALMER,
CORNELIUS R. AGNEW,
AMASA J. PARKER,
EDWARD L. BEADLE,
JOSEPH HOWLAND,
CHARLES WHEATON,
ODELL S. HATHAWAY,
JAMES ROOSEVELT,
FREDERICK D. LENTE,

Managers.

* Dr. A. S. McDill, Thirteenth Annual Report of the Board of Trustees of the Wisconsin State Hospital for the Insane, September, 1872.

TREASURER'S REPORT.

To the Managers of the Hudson River State Hospital:

The treasurer of the hospital respectfully submits the following summary of his receipts and payments for the year ending November 30, 1872:

RECEIPTS UNDER APPROPRIATION, 1871.

1871.

December 29.	State Treasurer's draft	\$10,000 00
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1872.

January 6.	State Treasurer's draft	10,000 00
January 20.	State Treasurer's draft	10,000 00
March 6.	State Treasurer's draft	7,000 00
April 3.	State Treasurer's draft	8,000 00
		<u>\$45,000 00</u>

PAID.

1871.

November 30.	Balance due me, as per my report,	
	December 26, 1871.....	\$14,099 59

Dec. 1, to June

1, 1872.	Paid as per vouchers, Nos. 206 to 285, inclusive, on file in Comptroller's office in Albany.....	29,952 89	
		<u>29,952 89</u>	<u>44,052 48</u>

1872.

June	1.	Balance on hand under appropriation of 1871,	<u>\$947 52</u>
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RECEIPTS UNDER APPROPRIATION OF 1872.

June	1.	Balance on hand under appropriation of 1871..	\$947 52
June	27.	State Treasurer's draft.....	40,000 00
July	16.	State Treasurer's draft.....	20,000 00
August	17.	State Treasurer's draft.....	20,000 00
September 30.		State Treasurer's draft.....	20,000 00
October	12.	State Treasurer's draft.....	20,000 00
November 14.		State Treasurer's draft	20,000 00
		Carried forward.....	<u>\$140,947 52</u>

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Brought forward \$140,947 52

1872. PAYMENTS UNDER APPROPRIATION, 1872.

June 1 to Oc-
tober 14.

Paid, as per vouchers Nos. 1 to
105, inclusive, on file in Comp-
troller's office at Albany..... \$157,089 25

June 1 to Oc-
tober 14.

Paid, as per vouchers Nos. 106 to
166, inclusive, not yet filed with
Comptroller..... 26,548 66

183,637 91

November 30.

Balance due me

\$42,690 89

November 30.

Balance on hand under special appropriation
(chapter 715, Laws of 1871), as per my last
annual report.....

\$8,430 75

PAID.

November 30.

Paid under this appropriation, as per vouchers
Nos. A 24 to A 36, inclusive, not yet filed with
Comptroller

8,423 70

November 30.

Balance on hand

\$7 05

OFFICERS' SALARIES.

November 30.

State Treasurer's draft on account of officers'
salaries, for year ending with date—this in-
cludes arrears due on treasurer's, superin-
tendent's, assistant physician and steward's
salaries for the previous year.....

\$9,125 00

November 30.

Paid on account of officers' salaries, for the
year ending with this date, as per vouchers
on file in State Comptroller's office.....

9,125 00

MAINTENANCE ACCOUNT.

November 30.

Received from individuals and counties for
board of patients and articles sold, from the
opening of the hospital down to and includ-
ing this date.....

9,113 72

PAID.

November 30.

Paid as per vouchers Nos. 1 to 48, inclusive,
on file with managers.....

8,778 79

November 30.

Balance in treasurer's hand.....

\$334 93

All of which is respectfully submitted.

JAMES H. WEEKS,
Treasurer.

POUGHKEEPSIE, Dec. 19, 1872.

REPORT TO THE MANAGERS.

GENTLEMEN.—The hospital was opened for patients on the 20th of October, 1871. By November 30th, which ends our fiscal year, seven patients had been received.

The whole number of admissions for the year ending November 30th, 1872, is 212, namely: 112 men and 100 women. The entire number under treatment during the same period was 219.

Of these, fifty-four men and thirty-nine women, making ninety-three in all, have been discharged, leaving still on our record at the end of the year, 126 patients.

Of the ninety-three who were discharged, forty-five were instances of recovery, namely: Twenty-five men and twenty women. Eleven went away improved and twelve unimproved. One left because he was not insane, and twenty-four were released by death.

In admitting patients to the privileges of the hospital, it has been our wish and endeavor to observe with strictness the judicious conditions prescribed and promulgated by the board of managers. Still, in a number of cases, we have felt that a necessity was imposed upon us to receive persons who should have been provided for elsewhere. Of these, the most objectionable belong to the epileptic and paralytic classes. Of epileptics, we have had eleven, and of paralytics eight. All but one of these nineteen incurables came on certificates of county judges. In none of these cases could there be any reasonable expectation of permanent benefit from medical treatment.

Apart from the very important consideration that the reception of persons thus hopelessly diseased may cause the exclusion of other patients whose restoration is not only possible but probable, there are special objections to the admission of

undoubted and confirmed epileptics into a hospital like ours. These are found in their constant liability to sudden paroxysmal attacks; in their convulsive movements, frightful distortion and fearful outcries, sufficient sometimes to shake the firmest nerves, and which are peculiarly appalling and damaging to weak patients, who may be just at the turning-point of convalescence. Besides those sudden outbreaks of blind fury and murderous violence, to which many epileptics are subject, the irritability and quarrelsome tendencies which mark them as a class, cannot fail to make them very unmanageable, and consequently highly detrimental to hospital discipline.

But while we feel that there are urgent reasons for the exclusion of this class from institutions devoted mainly to the treatment of acute insanity, we cannot overlook the claims of these unfortunates. An establishment expressly designed for them and adapted to their peculiar condition, seems to us the only possible way of meeting all the necessities of the case. The number of epileptics in this State has not, so far as we are aware, been definitely ascertained. The asylums, infirmaries and prisons of Ohio contain, it is said, 500 epileptics; and for these poor sufferers the Ohio Board of State Charities has recommended the creation of a special hospital. It would be strange, indeed, if New York, with a population twice as large, should not be found to have, at least, as great a number of confirmed epileptics. It is said, not, we trust, without good grounds, that a prominent member of the New York State Senate intends to present the claims of this much-needed charity to the Legislature at its coming session.

By the order of county judges patients have been sent to the Hudson River Hospital who do not come within the limitation of the statute. Under the law a judge is authorized to send those only whose insanity, at the giving of the certificate, is not of more than one year's standing. When patients, as has repeatedly happened, come thus to us with all the formalities of a legal commitment, we have not felt at liberty to reject them, even though we ascertain that their mental disease has existed for years.

In a number of instances we have been asked to receive, for a time, chronic cases of a troublesome, and some even of a dangerous character, from the fact that the county receptacle had no adequate accommodation, and that the Willard Asylum was full. In consequence of having thus to admit a class of persons who should have been provided for elsewhere, we have been compelled to shut our doors upon many private applicants, both chronic and acute, some of whom would have paid liberally for the privileges of the hospital.

The superintendents of the poor, for the counties belonging to the Hudson River Hospital district, at their meeting in October, 1871, unanimously resolved "that the managers of the Hudson River State Hospital be requested to receive only recent or acute cases of insanity." The managers of the hospital adopted the suggestion, and a notification to that effect was early sent to all the county judges, county clerks and county superintendents of the poor within the district. The wisdom and propriety of this action cannot be questioned. All will allow that the recent and acute cases have the first claim. They may—and, if promptly cared for, will—in all probability, be cured. To such patients, the hospital, with its kind medical treatment, is everything, and the only chance of their again enjoying the incomparable blessing of a "right mind" may lie within its walls. No so with him whose malady has passed into the chronic and comparatively hopeless stage. For him, indeed, the hospital is the best place. Nowhere else can he be so safe, so quiet, so comfortable. It may even be said that no other spot opens before him any vista of hope. Still it is not the only place. It is not indispensable to his welfare. It would certainly be unjust, it would be cruel, to exclude the acutely insane merely to accommodate a class of persons whose needs are so much less, that we lack words to express the difference. As the limited accommodations of our unfinished hospital would soon be entirely taken up by cases of a chronic type, to the exclusion of all others, the necessity, for the present, of proper discrimination and of resolute restriction is very evident.

At a recent meeting of the board of supervisors in one of the least populous counties of the Hudson River Hospital district, the sum of \$20,000 was appropriated for the erection of a house, to receive and keep the chronically insane of that county. There can be no more decisive indication of the fact that they, at least, do not expect nor intend to send their deranged poor to the Willard Asylum. The reasons which have led to such action in this case exist substantially in every part of our extensive district, and may be expected to induce similar action in other counties.

A score of county asylums would cost, in the aggregate, no insignificant sum, and yet their costliness is far from being the greatest objection to this mode of providing for the insane poor. In our report for 1869, the necessity of more and better provisions for the unfortunate class now under consideration was earnestly and urgently pressed on the attention of the only body in our commonwealth which has the power to make such provision. The cruel neglect, the shocking barbarities of the county alms-houses, as those enormities were discovered and portrayed, nearly thirty years ago, by Miss Dix, the similar revelations by Dr. Sylvester Willard, which, twenty years later, sent a thrill of horror through the whole community; the yet more recent and more thorough investigations of the New York Commissioners of Public Charities, which show that, notwithstanding all the exposures and all this indignation, many of the very worst abuses may still be seen in not a few of the counties of this great State; all these astonishing facts were detailed by us, as elsewhere and often they have been detailed. There is very little danger that they will be too frequently proclaimed or too unsparingly denounced. That they have continued to exist, in spite of the publicity and the shame, is a convincing proof that there are ineradicable tendencies to evil in the very system. The lot of the alms-house pauper, friendless and perhaps infirm, consigned for life to the cold arms of public charity, is but too often hard and sad. To poverty and weakness, superadd a disordered brain, and the calamity takes a much darker hue. If the insane too

often fare ill, even among relatives and friends, who wish and who mean, on the whole, to treat them well, but who, unfortunately, do not know what the proper treatment is, how inevitably will they suffer when placed in the custody of those with whom their peculiar needs are matters neither of knowledge nor concern.*

Whether we regard this question in the light of expense—a consideration which few are disposed to undervalue—or in the interests of an enlightened civilization and of true humanity, every movement that looks toward the perpetuation of the county asylum system should be sedulously discouraged. But to do this effectually, other and better provision must be made for these people. I have heretofore fully expressed my own convictions, founded not only on personal observation and reflection, but on the nearly unanimous testimony of those who are best qualified, by study and practical experience, to pronounce on a question of this nature. It may be regarded as an established fact that insanity, whether acute or chronic, can (with perhaps a very few exceptions) best be cared for in a rightly constructed, properly equipped and well-regulated hospital, having always at hand a competent medical staff and humane attendants, who have been expressly trained for their difficult and peculiar task. On the question of having separate and distinct hospitals for the two great classes—namely, the acutely and the chronically insane—whatever difference or doubt may have existed heretofore, there is little or no doubt now. The separate plan—condemned by reason in advance—has been tried and was found wanting. We have it on the high authority of Professor Griesinger, of Berlin, that in

* While thus referring to the acknowledged and undeniable abuses of the alms-house system, nothing is further from my purpose than to intimate that there are not many and honorable exceptions. In our own district, especially, I can, from actual knowledge and with entire confidence, assert that several of the county alms-houses are under the superintendence of gentlemen whose humanity and general fidelity to duty no one presumes to question. The treatment of the insane poor committed to their care is as good, every way, as it is possible for them to receive in such receptacles. In these comparatively small establishments it is not possible to have those facilities and advantages for the treatment of insanity which are found only in large and well-appointed hospitals. Of this fact these superintendents are well aware. Indeed, so far as we know, and they have repeatedly put their opinions and wishes on record, the general, if not universal, sentiments of the county superintendents is in favor of hospital provision by the State for all its insane poor.

Germany the separate system had been tried and abandoned. And Dr. Fred. Norton Manning, after visiting and studying nearly every hospital of insanity in the old world and in the new, declares that "the Scottish commissioners in lunacy and the vast majority of asylums in Great Britain, France and America consider that the separation of the insane into two classes, and their maintenance in two establishments, is wrong in principle, and calculated to be strongly prejudicial to their best interests."

As regards the Hudson River Hospital, its first and great need is the means requisite to complete what has been so well begun. If this were accomplished, our populous eastern district would be well provided for, so far as relates to cases of recent or acute insanity. For it must be remembered that in such a hospital the frequent discharges of patients cured or improved is constantly making room for others. But I have already suggested, and the suggestion had your approval, that the Hudson River Hospital cannot properly and fully meet the wants of this vast community, unless it includes in its purpose and plan the reception and care of the chronically insane. Permit me, here, to reproduce a passage from page twenty-five of our third annual report.

"In considering the question now before us, the conclusion to which we have come, justified, as it seems, by reason and by fact, is in favor of the mixed asylum ; or rather, of the hospital, which includes and covers all classes and cases of insanity. In such an institution provision will first be made for all new and acute cases, and nothing should be spared which experience has shown to be beneficial. For the chronic and the milder form, structures more simple and less expensive would answer every purpose. These might be in the hospital pavilion style, with low connecting corridors, admitting of extension and repetition as occasion should require. The same farm, garden, laundry, bakery, gas-house, slaughter-house, water and sewage works, wharf, roads, etc., etc., would answer for all, and no separate staff of medical officers would be needed. In a hospital of this description, all marked distinc-

tion of classes, founded on the idea of incurability, should be sedulously avoided. Nowhere, it is believed, could a trial of the system under consideration be made more easily, or with fairer prospects of success, than at the Hudson River State Hospital, in view of the natural advantages of its site, and, above all, of its central location upon a river and a road, which may be said to bring a population of nearly two millions within a half day's travel.

“Clearly, these poor creatures in the dismal cells of the county alms-houses must be put somewhere, and the State must provide for them shelter, and clothing, and food, and care. Such things are not to be had without cost; but not without cost are they kept now. To say nothing of damaged reputation and outraged humanity, could the actual expense of the counties be figured up, adding what it would cost the delinquent districts to provide only decent accommodations for their insane poor, it may well be doubted whether the plan here proposed would not be a clear saving in a pecuniary respect. This view is confirmed by calculations and actual results of similar comparisons which have been made in England and Scotland.”

Among the reasons which may be given for placing all the chronic and poor insane under good hospital care, one of the strongest is found in the fact that thus they are far more likely to get the quantity and the kind of diet which their peculiar case requires. Only those who have made insanity their study and care can be fully aware how much this has to do with the comfort and the recovery of its subjects. That the want of sufficient and nutritious food is, in a multitude of instances, the primary cause of the malady, there can be no doubt. From a statement in the Medical and Surgical Reporter, it appears that in 1870 there were in England and Wales 54,713 persons under the cognizance of the lunacy commissioners, and that 48,325 of these belonged to the pauper class. Those commissioners, moreover, expressed their conviction “that in a great majority of cases impaired nutrition is the cause of the malady.” In our land, where the means of subsistence are so much more abundant, and where the proportion of absolute paupers is so much smaller, partial starvation and poor food

cannot figure so largely in the list of exciting causes. This, however, should not invalidate the lesson taught us by that dark chapter of British experience.

Nor are we without experience of our own in regard to the folly of attempting to keep the insane on very cheap and poor food. In a former report I quoted, in this regard, from a memorial drawn up by Dr. Edward Jarvis in behalf of the trustees of the Worcester Hospital for the Insane, and presented to the Legislature of Massachusetts. As the simple statement of the facts is more to the purpose than whole pages of theoretic reasoning, I make no apology for reproducing it:

“Regarding the earnest suggestions of some members of the Legislature in 1863, the trustees requested the superintendent to try the experiment of a poorer and cheaper diet for the State paupers, and to give them a sustenance something like that allowed at the State alms-house. The experiment was tried faithfully for several months, and the daily condition of the patients carefully watched. But the result, as a matter of economy, was unfavorable. The patients were more irritable and discontented; the excitable were less easily controlled; the languid drooped more; the torpid were more indisposed to action; the wards of the maniacal patients were more noisy, and those of the demented made less show of life; and all the insane propensities and proclivities seemed to gather new force and to be less manageable in the hands of the officers and attendants; the curable made less progress, and the incurable were more intensely disordered.”

“Whatever might have been gained in the diminished cost of food, was manifestly more than lost in the slower progress of recovery, in the prolonged duration of the mental disorder, and in the probable failure of some to regain their health who might have been restored, if allowed to enjoy that better diet which the necessities of their morbid condition required. The experiment was given up as a failure. The usual generous diet was again given to these patients, and they soon began to show its effects in their improved condition and better progress.”

I need not remind you how much we all regretted our inability to continue building operations during the past year

The need of more ample provision for the cure of acute insanity in this great and populous district is a constantly increasing need. The malady which our hospital is intended to remove or relieve will never cease to rank among the greatest of human calamities. The well established and supremely important fact, that the probability of cure in cases of insanity depends on the promptness with which they are taken in hand and properly treated, finds added proof and illustration in every year's record. Were this momentous truth universally accepted, were its imperative obligations everywhere acknowledged and obeyed, there would soon be no lack of hospital accommodation for the insane, and what is more to the point, there would be no unnecessary and dangerous delay in placing those who are thus attacked where they can be rightly cared for.

The position which we would maintain is briefly this: Of those who become insane, and who are so favored as to be soon and rightly cared for, more than eighty per cent are restored to mental health; while, on the other hand, brain disease becomes chronic in direct proportion to the delay which it incurs in securing proper treatment. If there be any reliance on human observation and testimony, it is entirely safe to affirm that chronic insanity would ere long dwindle to comparative insignificance, were every patient, within a few days from his attack, placed under good medical and hospital care. For such a consummation, who does not devoutly wish? Who would not gladly toil? What an inestimable boon would it be to thousands of poor sufferers, who, through mistaken kindness, or false pride, or sheer ignorance, or a criminal indifference, or a miserable parsimony, are now permitted to pass through the curative stage, and to sink into hopeless insanity; yes, and how unspeakable the blessing to myriads of kinsfolk and friends, whose lives are saddened by an affliction far greater than any which even death can bring. And is not this the grand result at which the State should perpetually aim, and which every sane person in the community should earnestly endeavor to bring about. In this way, and only in this way, can we lighten and make comparatively easy the

now painful and costly burden which is imposed upon society by the presence of its chronic insane.

During the past year Dr. A. O. Kellogg has rendered constant, faithful and efficient service as assistant physician.

The institution has also been highly favored in having for its steward Mr. Robert Roberts, who for many years was the superintendent of the New York Hospital.

The fidelity and good conduct of our attendants commands with a very few exceptions our grateful acknowledgments.

To the Rev. George F. Rider, of the Cottage Hill Seminary, in Poughkeepsie, our thanks are due for a religious service at the hospital; to the young ladies also of his school for their singing on that occasion, and especially for the delightful concert which they afterward gave at the hospital.

To the Rev. Mr. Synnot, of the Protestant Episcopal Church, the hospital is indebted for a Sunday service; and to the Rev. Dr. McSweeny, of the Roman Catholic Church, for ministrations to our patients of that communion.

Mrs. Sarah Smiley, of Michigan, and of the Society of Friends, is gratefully remembered for her visits and the interesting address she made to the patients one Sunday afternoon.

To the Rev. John F. Potter, of Greenwood Iron Works, in Orange county, we are indebted for favors.

For many acts of neighborly kindness, Mr. William Ziegler will accept our thanks.

Mr. James W. Wood has our thanks for the valuable lamp which he gave to the hospital.

Our treasurer, Mr. James H. Weeks, has presented to the hospital a set of fine plaster casts from Thorwaldsen's Four Seasons, and his Night and Morning, a beautiful and valuable gift.

For the Poughkeepsie "Daily News," which has been regularly sent to the hospital, we acknowledge our obligations to the Hon. W. W. Hagaman, its editor.

Respectfully submitted.

J. M. CLEVELAND,
Superintendent.

POUGHKEEPSIE, *November 30th, 1872.*

APPENDIX.

TABLE

Showing the movement of the population.

	Men.	Women.	Total.
Number at beginning of the year.....	7	....	7
Admitted in the year.....	112	100	212
Total present in the year.....	119	100	219
Discharged recovered.....	25	20	45
Discharged improved.....	7	4	11
Discharged unimproved.....	7	5	12
Discharged died.....	14	10	24
Discharged not insane.....	1	....	1
Remaining at the end of the year.....	<u>65</u>	<u>61</u>	<u>126</u>

TABLE.

Showing the form of mental disorder in two hundred and twelve cases.

	Men.	Women.	Total.
Acute mania	35	36	71
Sub-acute mania.....	5	4	9
Chronic mania....	2	2	4
Periodic mania....	2	2	4
Melancholia.....	24	32	56
Dementia	31	23	54
Paresis.....	8	....	8
Imbecility.....	8	...	3
Mania a potu.....	....	1	1
Alcoholism	1	....	1
Not insane.....	1	....	1
Total.....	<u>112</u>	<u>100</u>	<u>212</u>

TABLE

Showing the duration of insanity previous to admission, in two hundred and twelve cases.

	Men.	Women.	Total.
One month.....	30	37	67
Two months.....	18	16	34
Three months.....	7	8	15

	Men.	Women.	Total
Four months.....	6	4	10
Five months	2	1	3
Six months.	5	9	14
Seven months.....	2	1	3
Eight months.	3	4	7
Nine months.....	3	2	5
Ten months.....	1	1	2
Eleven months.....	1	1	2
Twelve months....	5	4	9
Thirteen months.....	1	1	2
Eighteen months		1	1
Twenty months.....		1	1
Two years.....	3	2	5
Three years.....	3	1	4
Four years.....	1	....	1
Six years.....		1	1
Ten years ..	1	....	1
Unascertained.....	19	5	24
Not insane.....	1	....	1
Total.....	<u>112</u>	<u>100</u>	<u>212</u>

TABLE

Of probable exciting causes in those admitted during the year.

	Men.	Women.	Total.
Ill health	12	24	36
Puerperal.....		9	9
Intemperance	10	2	12
Epilepsy	4	3	7
Injury to head	4	1	5
Sunstroke	4	....	4
Over work.....	3	....	3
Phthisis pulmonalis	4	2	6
Hereditary.....	3	....	3
Exhaustion from heat		3	3
Religious excitement	2	....	2
Old age.....		1	1
Previous attacks		1	1
Anxiety and fatigue		1	1
Injury from fall.....	1	....	1
Inhalation of laughing-gas and extraction of teeth		1	1
Masturbation	1	....	1
Not insane.....	1	....	1
Unascertained.....	63	52	115
Total.....	<u>112</u>	<u>100</u>	<u>212</u>

TABLE

Showing the statistics of hereditary transmission in two hundred and twelve cases.

Where found.	Men.	Women.	Total.
Paternal branch.....	11	8	19
Maternal branch.....	8	11	19
Maternal and lateral branches.....	1	1	2
In sane relatives.....	5	9	14
Total.....	<u>25</u>	<u>29</u>	<u>54</u>

TABLE

Showing the nativity of those admitted.

New York.....	108
Ireland.....	53
Germany.....	13
Canada.....	8
England.....	7
Scotland.....	5
Massachusetts.....	4
New Jersey.....	3
Pennsylvania.....	2
Connecticut.....	2
Michigan.....	1
Italy.....	1
Maine.....	1
Rhode Island.....	1
Prussia.....	1
New Brunswick.....	1
South America.....	1
	<u>212</u>

TABLE

Showing the occupations of those admitted.

Housekeepers.....	59
Housework.....	28
Laborers.....	21
Farmers.....	14
No occupation.....	11
Farmwork.....	10
Carpenters and workers in wood.....	8
Clerks and salesmen.....	8
Masons and stone-cutters.....	4
Teachers.....	3

Painters	3
Shoemakers.....	3
Quarrymen	3
Tailors	2
Merchants	2
Blacksmiths	2
Book-keepers	2
Waiters	2
Seaman	1
Photographer	1
Butcher	1
Engineer	1
Freighter	1
Hotel keeper.....	1
Gardener	1
Lawyer.....	1
Factory operative	1
Distiller	1
Horse trainer	1
Theological student ...	1
Grocer	1
Cement burner.....	1
Milliner ...	1
Editor	1
Teamster	1
Dressmaker	1
Tobacconist	1
Brush maker.....	1
Weaver.....	1
Baker	1
Saddler	1
Nurse	1
Carriage trimmer.....	1
Brass worker	1
Bar-keeper... ..	1
Total	<u>212</u>

EDUCATION.

Of 212 admitted, one had received a collegiate, four an academic, and 170 a common school education; seven could read and write, eleven could read only, twenty had no education, and in one the degree of education was not ascertained.

CIVIL CONDITION.

Of those admitted, fifty-three men and forty-eight women were married; fifty-seven men and thirty-nine women were single, and two men and thirteen women were widowed.

TABLE

Showing the duration of insanity previous to admission, and the period under treatment in forty-five cases discharged recovered.

	Before admission.			Under treatment.		
	M.	W.	Tot'l.	M.	W.	Tot'l.
One week	2	1	3	....	....	....
Two weeks.....	1	2	3	....	....	....
Three weeks	3	1	4	....	....	....
Four weeks	1	4	5	1	....	1
Six weeks.....	1	3	4	1	....	1
Two months	5	2	7	2	1	3
Three months.....	2	3	5	3	4	7
Four months .....	..	1	1	6	5	11
Five months	2	....	2	3	5	8
Six months.....	1	2	3	5	2	7
Seven months .....	....	1	1	1	1	2
Eight months	1	....	1	2	2	4
Nine months.....	1	....	1	..	....	....
Twelve months.....	2	....	2	....	....	....
Thirteen months.....	....	....	....	1	....	1
Unascertained.....	3	....	3	....	....	....
Total.....	25	20	45	25	20	45

TABLE OF MORTALITY

Showing the Cause of Death in the twenty-four who died during the Year, and the form of Insanity in each at time of admission.

FORM OF INSANITY AT TIME OF ADMISSION.	Phtisis pul- monalis.		Cerebro-spinal meningitis.		Apoplexy.		Exhaustion.		Paralysis.	Paresis.	Erysipelas.	Tubercular peritonitis.	Pneumonia.	Age and ex- haustion.	Epilepsy.	Mania a potu.	Suicide.
	M.	W.	M.	W.	M.	W.	M.	W.									
Acute mania.....	4	5	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1
Melancholia	7	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Dementia	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Paresis	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Mania a potu.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Total	14	10	1	8	1	2	1	2	2	2	1	1	1	1	1	1	1

STATE OF NEW YORK.

No. 55.

IN SENATE,

March 14, 1873.

LIST OF GENERAL ORDERS.

G.O.

- 278. An act to incorporate the Mount Vernon Lodge of the Independent Order of Good Templars, number 136.
- 279. An act for the relief of John Hay and others, claiming as heirs of John G. Leake.
- 280. (Assembly, 148.) An act in relation to taxation in the city of New York for the year 1873.
- 281. An act further to amend an act passed May 8th, 1869, entitled "An act to incorporate the city of Watertown."
- 282. An act to incorporate the New York College of Anesthesia.
- 283. An act to amend the act entitled "An act to authorize the establishment of a State asylum for the chronic insane, and for the better care of the insane poor, to be known as the Willard Asylum for the insane," passed April 8th, 1865.
- 284. An act incorporating the trustees of the Northern New York Conference of the Methodist Episcopal Church.
- 285. An act to incorporate the Carmel Grove Camp Meeting Association of the Methodist Episcopal Church.
- 286. An act to regulate the sale of ale, beer and lager beer, and to establish a standard for the same.
- 287. An act to provide for a town hall at Waterford, Saratoga county.

G. O.

288. An act for the erection of an iron bridge over the Champlain canal at Smith's basin, in the county of Washington.
289. An act to construct a bridge over the Erie canal one mile east of the village of Pittsford.
290. An act for the erection of an iron bridge over the Erie canal at Cohoes, in the county of Albany.
291. An act relative to the medical laws of the State of New York.
292. An act to amend the Revised Statutes in relation to laying out public roads and the alteration thereof.
293. An act to amend, extend and continue an act entitled "An act to incorporate the Bankers' Life Insurance and Trust Company of New York," passed May 6th, 1870.
294. An act to repeal an act entitled "An act relating to Queens County Railway Company," passed April 19th, 1871; also, "An act relating to the Queens County Railway Company," passed May 10th, 1872.
295. An act to amend an act entitled "An act to establish and maintain a police force in the city of Cohoes," passed May 6th, 1870.
296. (Assembly, —.) An act to amend an act entitled "An act to provide for the building of iron bridges across the Chemung river, in the city of Elmira, and bonding said city to pay the expenses thereof," passed April 24th, 1872.
297. An act to enable the Utica, Clinton and Binghamton railroad to extend its road.
298. An act to regulate and establish the rates of fare to be paid for the transportation of persons and baggage over the New York and Erie railway.
299. An act releasing the interest of the people of the State of New York in certain real estate to Gertrude Taylor.
300. An act to release the interest of the people of the State of New York in certain real estate to Anna Blenck.
301. (Assembly, —.) An act to authorize the private secretary of the Governor to sign in his behalf certain commissions.

G. O.

302. An act to establish a commission in and for the city and county of New York, to be known and designated as the commission of charitable correction, and to define its powers and jurisdiction.
303. (Assembly, 144.) An act to legalize the acts of Edmund J. Porter as police justice of the village of New Rochelle, in the county of Westchester.
304. (Assembly, 83.) An act to amend an act entitled "An act to vest in the board of supervisors certain legislative powers and to prescribe their fees for certain services," passed April 3d, 1849.
305. An act to amend the Revised Statutes in relation to the assessment and collection of taxes.
306. An act to release to Daniel Schoonmaker certain real estate in the city of New York, of which Bridget Schoonmaker, lately his wife, died seized.
307. An act to amend chapter 925 of the Laws of 1871, entitled "An act to amend chapter 907 of the Laws of 1869, entitled 'An act to amend an act entitled "An act to authorize the formation of railroad corporations, and to regulate the same," passed April 2, 1850,' so as to permit municipal corporations to aid in the construction of railroads, and also to amend chapter 507 of the Laws of 1870, entitled 'An act to define the powers of commissioners appointed under chapter 907 of the Laws of 1869, bonding municipalities to aid in the construction of railroads, and also to amend any and all special acts relating to the formation of railroad corporations, and to the bonding of towns and municipalities to aid in the construction of railroads.'"
308. An act to reorganize the New York State Inebriate Asylum, and to provide for the better support and maintenance of the same.
309. An act to change the corporate name of the Black River Conference Seminary.

STATE OF NEW YORK.

No. 56.

IN SENATE,

March 17, 1873.

COMMUNICATION

FROM THE COMPTROLLER OF THE CITY OF NEW YORK, IN REPLY TO A RESOLUTION OF THE SENATE, MARCH 3, 1873, IN RELATION TO COSTS, FEES, ETC., ON JUDGMENTS.

SENATE CHAMBER,
ALBANY, *March 3, 1873.* }

On motion of Mr. TIEMANN,

Resolved, That the comptroller of the city of New York be requested to communicate to the Senate a statement showing all costs and fees paid by him since his accession to office, on judgments or orders of any court, and what amendments to the existing laws, respecting the obtaining of judgments against the city, are necessary to protect its interests.

By order.

CHAS. R. DAYTON,
Clerk.

CITY OF NEW YORK, DEPARTMENT OF FINANCE, }
COMPTROLLER'S OFFICE, *March 13, 1873.* }

To the Honorable the Senate :

I have the honor to transmit, in accordance with the resolution of the Senate, a statement showing all costs and fees paid by the present comptroller of the city of New York, since his accession to office, on judgments and orders of any court.

By this statement, it appears that all the costs, fees and expenses

paid on judgments and orders of court, which were commenced since the present comptroller took office, other than vacation of assessments, amount to the sum of \$674.56 ; in addition to this, there has been paid \$1,244.78 for costs in that objectionable class of proceedings to vacate assessments. All other costs, fees, etc., paid by me were in cases and proceedings commenced from five months to ten years before my accession to office. The first information of them came to me when the execution was, or was about to be, issued. They amount in all to \$11,912.03. Of the above amounts, \$1,232.91 were paid to the sheriff of the county for his fees on executions.

In the large number of mandamuses commenced against the city since I came into office, the principles laid down by this department for the audit of claims have, in almost every instance, been sustained by the courts ; thus inaugurating a new system of audit, which will, I believe, prove very advantageous to the interests of the city. The costs paid by the city in these proceedings, all taken together, will not amount to *fifty dollars*.

I am required to state to the Senate what amendments to the existing laws, respecting the obtaining of judgments against the city, are necessary to protect its interests. In a communication to the Legislature of 1872, I stated the imperative necessity of authority to raise means to meet the claims against the city of years prior to 1871. No legislation, however, was consummated to accomplish this purpose, and I have had to deal with the arrearages of this character as best I could, with the expectation that the present Legislature would authorize the means to pay such of them as ought to be paid.

An impression has gained currency, among the legal profession, that the statutes, as they now stand, authorize the Comptroller to raise money on revenue bonds to pay judgments obtained against the city. So that while there is no money in the treasury to meet these old claims, under this interpretation of the law, if a suit is commenced on one of them, and a judgment against the city obtained, the impression seems to be that money can be provided to pay it.

This view of the law is well adapted to invite litigation and to incur costs and fees. I respectfully suggest that authority be given to provide means to pay honest claims against the city. I have found a disposition on the part of many fair minded men to appreciate the difficulties of the department in respect to these old claims, and to wait till the Legislature authorizes the means to pay them.

Most of the claims of the years 1871 and 1872 are sufficiently provided for ; but for those of earlier years, there is no money in the treasury, nor is there any legal method of obtaining it.

I recommend that the portion of section 5, of chapter 583 of the Laws of 1871, that provides for giving preference on the calendars of the courts to cases against the city be repealed. There is a tendency on the part of claimants to press their cases on before the law officers of the city can be properly prepared to meet them. Cases against the city are often differently circumstanced from others, and any especial preference in the advancement of them is likely to result in injury to the public interests.

The revenues of the office of sheriff of the county of New York are very large, and I think the public interests would be subserved by the abolition of all fees on executions against the city and county.

With very great respect,

AND. H. GREEN,
Comptroller.

SCHEDULE A.

Statement of costs and fees on judgments and orders of court, which were commenced since the present Comptroller came into office.

Date of commencement of suit.	TO WHOM PAID.	Nature of claim.	Date of payment of costs and fees.	Amount of costs.	Amount of fees.
1873. July 27 July 19. July 17. Sept. 20. July 22. October 1. October 2.	Dennis Quinn Charles L. Camman & ors., assignees. Edward Boyle. Michael Shaugnessy. assignee of James A. Couvier	For salary as justice of the third district court. Claim for Services Claim for Services Salary as justice of fourth district police court.	1873. Aug. 28. Sept. 20. Oct. 21. Nov. 12. Nov. 19. Jan. 16. Jan. 16.	\$15 73 54 23 53 21 10 00 43 69	\$38 69 51 76 48 69 69 63
1871. Sept. 18.	Joseph H. Monheimer	Claim for paving Seventh avenue	March 2.	141 25	.....
1872. January 16. April 17. April 15. February 14. April 15. April 17. April 11. March 23. February 6. March 27.	Adam L. Cameron and others. John Voorhis. Samuel L. M. Barlow. C. Godfrey Gunther. Jno. Sherwood and others. Sigismund Kaufman. Jacob Voorhis, Jr. Gould Hoyt. Wm. B. Astor. Frederick D. Tappan, executor.	Proceedings to vacate assessments. Proceedings to vacate assessments. Proceedings to vacate assessments. Proceedings to vacate assessments. Proceedings to vacate assessments. Proceedings to vacate assessments. Proceedings to vacate assessments. Proceedings to vacate assessments. Proceedings to vacate assessments. Proceedings to vacate assessments.	Feb. 11. Feb. 25. Feb. 25. Feb. 25. Feb. 25. Feb. 25. Feb. 25. Feb. 25. Feb. 25. Feb. 25.	304 31 105 50 105 50 105 50 105 50 105 50 105 50 105 50 196 47 105 50	..................................................
1871. May 4	John Houghtalin	Services as clerk in bureau of county affairs	March 8.	10 00	.....
1872. March 7. March 11.	John A. Thompson. Louis Kalinski	Services as assistant messenger district attorney's office. Services as interpreter.	March 8. March 12.	10 00 10 00	..........
Totals	.....	.....	.....	\$1,585 93	\$283 26

The above fees were paid to Matthew T. Brennan, sheriff.

SCHEDULE B.

Statement of costs and fees on judgments and orders of court, which were commenced before the present Comptroller came into office.

Date of commencement of suit.	TO WHOM PAID.	Nature of claim.	Date of payment of costs and fees.	Amount of costs.	Amount of fees.
1868. March 31.	Daniel Fox	Loss of horses and carriage	1872. June 19.	\$179 66	\$210 97
1868. Nov. 11.		Regulating, grading, etc., 8th avenue, 3rd to 10th streets.	June 30.	470 54	143 35
1867. Jan. 4.		Damages to horse and wagon	June 30.	465 77	71 97
1870. March 3.		Legal services	June 31.	345 98	
1870. Feb. 2.		Proceedings to vacate assessments	June 22.	110 57	
1870. Feb. 2.		Proceedings to vacate assessments	June 22.	111 32	
1870. Feb. 2.		Proceedings to vacate assessments	June 22.	110 97	
1869. Nov. 6.		Prising 2d avenue, 61st to 84th street.	June 22.	110 57	
1870. Sept. 1.		Services of market sweepers	June 22.	1,367 69	
1870. October 4.		Services of market sweepers	June 30.	1,336 45	594 39
1868. May 30.		35th street and East river.	June 30.	356 23	
1868. May 30.		35th street and East river.	June 30.	303 90	
1870. May 30.		35th street and East river.	June 30.	313 63	
1870. Feb. 17.		35th street and East river.	June 30.	315 97	
1869. June 7.		Ant on appeal	June 30.	375 94	
1868. Nov. 6.		Ant on appeal	June 30.	337 19	
1868. Sept. 14.		Ant on appeal	June 30.	145 75	
1870. Sept. 8.		Ant on appeal	July 2.	363 37	
1871. Jan. 16.		Ant on appeal	July 2.	613 94	
1870. July 12.		Ant on appeal	July 5.	193 35	
1867. Sept. 12.		Ant on appeal	July 17.	99 02	
1867. March 26.		Ant on appeal	July 17.	123 54	
1868. March 1.		Ant on appeal	Aug. 31.	404 05	
1868. June 6.		Ant on appeal	Sept. 12.	169 90	
1867. Dec. 16.	Ellis Killian, executor.	drowning at pier foot of	Oct. 26.	338 04	
1868. Oct. 10.	Alexander E. Orr.	drowning at pier foot of	Nov. 18.	505 16	
1871. May 24.	Samuel Schnyler	drowning at pier foot of	1873. Jan. 11.	1,303 06	
1871. August 4.	J. B. Cornell, survivor of J. B. and W. W. Cornell	drowning at pier foot of	March 1.	330 50	
		Materials furnished new county court-house	1873. March 16.	337 15	
		Total		\$10,902 48	\$949 55

The above fees were paid to Matthew T. Brennan, sheriff.

STATE OF NEW YORK.

No. 57.

IN SENATE,

March 17, 1873.

COMMUNICATION

FROM THE UNION LEAGUE CLUB OF NEW YORK CITY,
TRANSMITTING RESOLUTION PASSED BY THAT
BODY IN REGARD TO TAXATION OF BONDS AND
MORTGAGES.

THE UNION LEAGUE CLUB,
MADISON AVENUE, COR. OF TWENTY-SIXTH STREET, }
NEW YORK, *March 13, 1873.*

Hon. JOHN C. ROBINSON,

President of the Senate, Albany :

SIR.—I have the honor, by direction of the Union League Club,
to hand you, herewith, copy of resolution in regard to taxation on
bond and mortgage, adopted at its meeting this evening.

Very respectfully, your obedient servant,

GEO. H. B. HILL,
Secretary.

THE UNION LEAGUE CLUB,
MADISON AVENUE, COR. OF TWENTY-SIXTH STREET, }
NEW YORK, *March 13, 1873.*

At a regular monthly meeting of the Union League Club, held at
the club house, on the evening of March 13th, the following resolu-
tion, presented by the committee on reform, was adopted :

Resolved, That, in the opinion of this club, the financial prosperity of all classes of the people of this State will be promoted by the abolition of the taxes now levied on investments on bond and mortgage, and that it is advisable that the influence of the club be used to bring about such repeal at the present session of the legislature.

A true copy from the records.

JOSEPH H. CHOATE,
President.

Attest: GEO. H. B. HILL,
Secretary.

STATE OF NEW YORK.

No. 58.

IN SENATE,

March 18, 1873.

REPLY

OF THE BOARD OF WARDENS OF THE PORT OF NEW YORK TO A RESOLUTION OF THE SENATE, RELATIVE TO THE PILOTS AND PILOTAGE OF VESSELS, ETC., IN THE EAST RIVER.

BOARD OF PORT WARDENS,
New York, *March* 1873. }

Hon. JOHN C. ROBINSON,

President of the Senate :

We have the honor to acknowledge the receipt of the following resolutions :

“*Resolved*, That the Board of Wardens of the Port of New York be, and they are hereby required to report to the Senate within ten days,

“1. The number of pilots appointed and doing duty as such for the pilotage of vessels through the channel of the East river, called Hell Gate, on the 5th of April, 1871, and also the present number doing such duty.

“2. The number of vessels which passed through such channel liable to pilotage, since the 5th day of April, 1871, and for each year respectively, since that time, distinguishing those for which full pilotage has been paid, and those for which half pilotage has been paid.

“3. The amount received for full pilotage and half pilotage respectively, for vessels passing through such channel since the said 5th day of April, 1871.”

And in answer we inclose and transmit herewith the report received by us from the pilots, which contains all the information we have in relation to the subject embraced in the foregoing resolution.

Respectfully submitted.

J. AUG. HENIMAN,
Secretary.

*Hell Gate pilot returns from April 5th, 1871, to March 12th, 1873,
two years.*

	Number.	Amount received.
Foreign vessels piloted	1,469	\$24,028 66
American vessels subject and piloted	4,056	43,203 58
American vessels not subject but piloted ...	1,837	12,084 11
Half pilotage collected	1,618	9,771 15
		<hr/>
		\$89,087 50
		<hr/>

April 5th, 1871, number of pilots, fifty-two; two appointed and two died since; on duty at the present time, forty-two.

Passed through Hell Gate during above time:

	Number.
Foreign vessels.....	1,500
American vessels subject to pilotage.....	15,526
American vessels not subject to pilotage	28,971
	<hr/>
Total	45,997
	<hr/>

Total pilotage.....	\$89,087 50
Foreign	24,028 66
	<hr/>

Total American pilotage.....	\$65,058 84
Pilotage not subject.....	12,084 11
	<hr/>

Total American subject	\$52,974 73
	<hr/>

STATE OF NEW YORK.

No. 59.

IN SENATE,

March 20, 1873.

REPORT

OF A MAJORITY OF THE COMMISSIONERS APPOINTED UNDER CHAPTER 715, LAWS OF 1871, TO INVESTIGATE THE QUESTION OF THE ILLEGAL TAXATION OF LANDS UPON THE BUFFALO CREEK, ALLEGANY AND CATTARAUGUS INDIAN RESERVATIONS.

To the Legislature of the State of New York :

The undersigned, commissioners appointed by chapter 715 of the Laws of 1871, as follows :

“Asher P. Nichols, Marshall B. Champlain, Homer A. Nelson, Albert Haight and Norman M. Allen are hereby appointed commissioners to examine the subject of the taxation of lands upon the Buffalo Creek, Allegany and Cattaraugus Indian Reservations, in the counties of Erie and Cattaraugus, under chapter 254 of the Laws of 1840, and chapter 166 of the Laws of 1841, or other laws, and report to the next Legislature a proper and equitable plan for the adjustment and settlement of the same, as between the State, the said counties and individuals,”

Amended by the following provision in chapter 733 of the Laws of 1872, which amendment is as follows :

“The commissioners appointed, under and by virtue of the provisions of chapter 715 of the Laws of 1871, to examine the subject of the taxation of lands upon the Buffalo Creek, Allegany and Cattaraugus Indian Reservations, and to report a plan for the equitable adjustment and settlement of the same, as between the State, the counties and individuals, are hereby authorized to report to the next Legislature, and Nelson K. Hopkins is hereby appointed as one of said commissioners in the place of Asher P. Nichols, absent from the State,”

Respectfully report that they have been unable to obtain any information in regard to the subject referred to the commissioners, except as is embodied in the public documents relating thereto, and judicial decisions in which some of the questions were involved.

HISTORY OF TAX.

In eighteen hundred and forty, the Legislature, chapter two hundred and fifty-four, directed a tax to be levied upon the Indian Reservation lands lying within the counties of Erie and Cattaraugus, viz.: Buffalo Creek, Cattaraugus and Allegany, for the purpose of opening roads through such reservations. And in eighteen hundred and forty-one, chapter one hundred and sixty-six, a further act was passed directing the supervisors of the respective counties to appoint commissioners to make surveys, open roads and build bridges on these reservations, and to defray the expenses, directed a tax to be levied on the reservation lands during the years eighteen hundred and forty-one, eighteen hundred and forty-two and eighteen hundred and forty-three, on the Buffalo Creek Reservation five thousand dollars per year, on the Cattaraugus Reservation five thousand per year, and on the Allegany Reservation four thousand per year.

The requirements of the two acts were complied with, and taxes were levied during the year eighteen hundred and forty, eighteen hundred and forty-one, eighteen hundred and forty-two and eighteen hundred and forty-three, and beyond the taxes authorized by such acts, the supervisors of the respective counties also levied taxes upon such reservations for general town and county purposes. The taxes so levied were not paid, and the treasurers of the two counties returned the same to the Comptroller of the State, who advanced the money on the same, and at the tax sale in eighteen hundred and fifty-nine, sold these several reservations for the non-payment of these taxes, to reimburse the State.

Meantime, the title to the Buffalo Creek Reservation had passed into the hands of the whites, most of whom, in eighteen hundred and sixty-one, on the last day for the redemption, after the Court of Appeals had decided the same legal, came forward and redeemed their lands.

HISTORY OF THE SUIT.

After the sale of the lands in 1859, Robert Denniston, the Comptroller, on the part of the State, agreed upon a settlement of facts upon which the case was submitted to the General Term of the Supreme Court of the Third district, Fellows et al. being the plain-

tiffs, and the Comptroller and Thomas W. Alcott, a purchaser under the tax sales, were defendants, and in which the plaintiffs asked to have the sale and tax set aside as illegal and void.

The counties of Erie and Cattaraugus were not parties to such suit. The case was made up wholly by the parties to the record, without consultation with the local authorities of said counties. It was decided in favor of the defendants, and an appeal was taken to the Court of Appeals, and the decision of the General Term in main affirmed. (See 23d N. Y. Reports, page 420.) A further appeal was then taken to the Supreme Court of the United States, and the decision of the court of the State reversed. (See 5th Wallace, U. S. Report, page 761.) The Supreme Court of the United States held,

1st. The Indians being in possession of the lands, their ancient and native homes, the enjoyment of which had been secured to them by a treaty made by the United States, the State in which the lands lie have no right to tax the land, even for the special purpose of surveying and opening roads and building bridges.

2d. The statute of the State directing such tax to be levied and the land sold for its non-payment is void.

In 1864, the matter of adjustment as to the taxes levied under and by virtue of chapter 166 of the Laws of 1841, between the counties and State, was brought before the Legislature, and the whole matter examined and reported upon (see Senate documents No. 30, 1864, page —), and resulted in the passage of the following act, chapter 81 of the Laws 1864:

ACT OF ADJUSTMENT.

AN ACT in relation to unpaid taxes on the Allegany and Cattaraugus Indian Reservations.

PASSED March 28, 1854; three-fifths being present.

The People of the State of New York, represented in Senate and Assembly, do enact as follows:

SECTION 1. The Comptroller is hereby empowered and required to sell, at such time or times and in such manner as other lands are now required by law to be sold for the non-payment of taxes, the lands included in the Allegany and Cattaraugus Indian Reservations, as the same have been returned to him by the counties of Cattaraugus and Erie respectively, for the payment of the taxes assessed upon such lands, pursuant to chapter one hundred and sixty-six of the Laws of eighteen hundred and forty-one, in the years eighteen hundred and forty-one, eighteen hundred and forty-two and eighteen

hundred and forty-three, provided that such sale shall not affect the title, interest or right of occupancy of the Seneca Nation of Indians of any part of the lands so sold.

§ 2. The Comptroller is required to credit to the counties of Cattaraugus and Erie, respectively, the amount of taxes assessed upon such lands in each of said counties, pursuant to said chapter one hundred and sixty-six of the Laws of eighteen hundred and forty-one, with the interest accumulated thereon, and the expenses of the former sale of said lands, and no part of such taxes shall again be charged to either of said counties, or to any town therein.

§ 3. The Comptroller is hereby required to certify to the boards of supervisors of the counties of Cattaraugus and Erie, respectively, a transcript of the lands included in the Cattaraugus and Allegany Indian Reservations, heretofore returned to him by said counties respectively, for the non-payment of highway taxes assessed pursuant to chapter two hundred and fifty-four of the Laws of eighteen hundred and forty, or for the non-payment of taxes assessed upon said land for town and county purposes, with the amounts of such taxes, and the accumulated interest thereon, as so returned to him. Upon so certifying the same, the Comptroller shall immediately credit said counties respectively, with the amount of such taxes returned by them respectively, and no part of such taxes or interest shall again be charged to either of said counties or any town therein, except for the omissions or neglect of the officers of such counties to levy and return such taxes as hereinafter provided.

§ 4. The boards of supervisors of said counties respectively, at their first annual meeting, shall cause said lands, so certified to them by the Comptroller, to be entered, with their peculiar descriptions, in that part of the assessment rolls of the several towns in which such lands or any part thereof are situated, in which the lands of non-residents of the town are put down, and shall assess upon each parcel of such lands the amount of taxes heretofore assessed upon the same, under the act and for the purposes specified in section three of this act, and the accumulated interest thereon, as the same shall be certified to them respectively by the Comptroller, and shall issue their warrant for the collection of the taxes so assessed by them in the same manner as other taxes are collected, and requiring the same, when collected, to be paid to the treasurer of the county in which the same shall be collected, to be by him paid into the State treasury.

§ 5. If said taxes shall be paid or collected, the same shall be paid,

by the treasurer of the county in which the same shall be collected, in the State treasury; but in case of their non-payment, or a failure to collect the same by the collector, the lands upon which the same shall be assessed shall be returned to the Comptroller, and by him sold in the same manner as other lands are by law returned and sold for the non-payment of taxes. But no sale of said lands or any part thereof shall in any manner affect the title, interest or right of occupancy of the Seneca nation of Indians of, in or to said lands so sold.

§ 6. This act shall take effect immediately.

It would, to the mind of the undersigned, be a very satisfactory reason why the adjustment thus made should not be disturbed; that the various Indian tribes occupying reservations within this State hold the same by virtue of treaties made with the State and the United States; that they have been regarded as the wards of the State, and that the fostering and protecting arm of the government has always been stretched out for their protection and support.

Many enactments are found in the legislative annals, where the munificence of the State has been extended to them, not only in annuities, but in appropriations of money from the public treasury to build roads and bridges, and otherwise improve the lands occupied by them. But there are other reasons, hereafter mentioned, quite as satisfactory why this adjustment should not be disturbed.

The act, chapter 81 of the Laws of 1864, quoted, in the judgment of the undersigned, should be held as a conclusive settlement of all the questions in controversy, arising out of the collection of said taxes, between the counties of Erie and Cattaraugus and the State. Although one of the special laws under which the taxes were imposed is not mentioned in the act, and one of the reservations omitted by name, the principle of the adjustment must be held to have been intended to apply to all the taxes imposed and all the reservations upon which they were assessed. If it is a just and equitable adjustment as to the taxes imposed in one year and upon a portion of the reservations, it would be equally an equitable and fair adjustment as to the taxes imposed in another year and assessed upon the other reservations, and ought not to be disturbed as to any of the taxes on either of the reservations.

As to the taxes imposed by the board of supervisors for town and county purposes, as we construe the third section of the act, such taxes were included in terms in the adjustment. We are informed that the sum thus imposed is inconsiderable in amount, being origi-

nally about \$1,100 in the county of Erie and \$1,700 in the county of Cattaraugus. We are of the opinion, whether included in terms or not, they should be held to be included in the equitable principle of adjustment apply by the act aforesaid to the special taxes.

The local authorities by whom these last taxes were imposed were encouraged to this course of official action by the acts of the Legislature, directing them to levy the special taxes.

They had a right to regard such acts as a legislative adjudication, that the lands comprised within such reservations were subject to such general taxes, and it is clear that they were thus induced to make such impositions, because no such general taxes had ever been so imposed before the passage of the laws directing the imposition of special taxes in either of these counties. However this may be, considering the small amount of this class of taxes involved, and the length of time, about thirty years, which has elapsed since they were imposed, we see no adequate reason to disturb the adjustment made so far as this class of taxes is involved, as made by the act of 1864, hereinbefore quoted. Besides, the conclusions we have arrived at upon the claims of the individuals for reimbursement of the moneys paid, if any part of such moneys so paid was for the class of taxes last mentioned, will render it improper and useless to open such adjustment. The only remaining question to consider is, whether the claimants are entitled to have the money paid for taxes refunded from the State treasury. It seems that, pending the litigation in regard to the legality of their assessment, some of the whites, settlers of the lands, who had purchased from the Ogden Company, paid the taxes in order to redeem them from the sale.

There has never been any real controversy as we can learn, especially since this adjustment between the counties and the State in regard to these taxes in 1864. The agitation of the question has come from the claimants, who paid taxes on the Buffalo Creek Reservation lands to redeem them from the tax sale of 1859. So far as we have been able to learn from a partial investigation of the question, on the discussion of the claim at Albany at two or three different occasions and at different sessions of the Legislature, a pretended controversy between the counties and State was paraded as the subject for adjustment, when the real point to be gained was found upon closer scrutiny to be to draw from the State treasury the amount of the taxes, and the payment of such sums to the settlers or their assignees.

It was charged by persons about the Legislature, that these claims

had been bought up by speculators, at a great discount, and that this scheme of legislation was sought to be carried through to enrich the purchasers. This may be unjust to these individuals, or their assignees; and we have no means of investigating its truth, for the reason that, although this commission has been organized for nearly two years, and have held many meetings at the time and place where meetings have been appointed, but few of these parties have ever appeared in person or by counsel to urge their claims for reimbursement. It is said that these special taxes, on all of the reservations, principal and interest, now amounts to nearly two hundred thousand dollars — nearly or quite two-thirds of which is interest. It is remarkable, to say the least of it, that these parties claiming reimbursement have not presented themselves, with the credentials by which a claim of such magnitude is to be maintained; if it be said that the facts sufficiently appear in the public documents and judicial decisions, it will be borne in mind, that although the history of this controversy may be found in the judicial decisions and public documents, that the only point established by such documents and decisions is, that the question determined by such adjudication was that the taxation was illegal, because it *might result in a disturbance of the Indians in the peaceable possession of these reservations.*

When the claimants came to the State Legislature, appealing to its justice and beneficence to refund these moneys, as between such claimants and the State, all the equities bearing upon the question are broadly open to investigation and consideration.

They stand in the same attitude, and are invested with no greater equities than any other claimant upon the justice or bounty of the State.

The portion of the settlers who paid their taxes had purchased their lands from the Ogden Company, which company had obtained the pre-emption right from the State of Massachusetts thereto.

The weight of judicial authority is, that such company took a fee subject to the extinguishment of the Indian title, which title was a mere right of occupancy, originally a mere right to hunt and fish upon these lands. Certain it is, that the taxes levied were all expended in surveying the lands, building roads and bridges, and other improvements, whereby the inheritance was largely enriched and values largely increased. Certain it is, that this property was all the while under the protection of the government and the law, and ought equitably to have contributed its share to the burthens necessary to maintain such protection.

A technical barrier was in the way of its taxation while the cloud of the Indian title rested upon it. That technical barrier was removed shortly after the imposition of these taxes by the extinguishment of the Indian title, so far as the Buffalo Creek Reservation is concerned. Thenceforth they could legally be taxed for all purposes, and, in our judgment, it was but fair and equitable that the owners should pay the taxes assessed upon them to enrich them in the past. This equity is at least so strong as to preclude these parties, who have voluntarily paid, from claiming a return of the money.

The parties must have known all the legal bearing of litigation; all the facts were public and notorious, and must have been well understood by the claimants. The State courts had mainly affirmed the legality of the taxation. It is a familiar principle to every lawyer, that, as between party and party, that money paid in ignorance of the law cannot be recovered back. (See *Jacobs v. Morange*, 47th N. Y., p. 57.) On this point Chancellor Kent observed, in *Lyon v. Richmond* (2d Johnson's Chancery Report, pp. 51-60): "The courts do not undertake to relieve parties from their acts and deeds fairly done on a full knowledge of facts, though under a mistake of the law." "Every man is to be charged at his peril with a knowledge of the law."

Who can say but that the Ogden Company, in the conveyance to the settlers, may have covenanted to pay these very taxes, or who can say but that the settlers may have taken conveyances of the lands subject to these taxes, and covenanted themselves to pay them. No evidence upon this subject has been presented to the commission. But we believe the question to have been adjusted between the counties and the State, and that such adjustment ought not to be disturbed. As between the State and the settlers who have paid, we believe they should not be heard to urge the technical ground involving only the security of the Indians as a reason against such payment, and for the return of their moneys. We have been unable to bring ourselves to the conclusion that the claimants have any equitable right to a return of these moneys, either from the counties or from the State.

All of which is respectfully submitted.

MARSHALL B. CHAMPLAIN.
NELSON K. HOPKINS.
NORMAN M. ALLEN.

STATE OF NEW YORK.

No. 60.

IN SENATE,

March 20, 1873.

REPORT

OF A MINORITY OF THE COMMISSIONERS APPOINTED
UNDER CHAPTER 715, LAWS 1871, TO INVESTIGATE
THE QUESTION OF THE ILLEGAL TAXATION OF
LANDS UPON THE BUFFALO CREEK, ALLEGANY AND
CATTARAUGUS INDIAN RESERVATIONS.

To the Legislature:

The undersigned members of the commission appointed by the Legislature of 1871, chapter 715, and chapter 733 of the Laws of 1872, have the honor to submit the following report:

ORGANIZATION OF THE COMMISSION.

The following are the provisions of the acts above referred to, constituting the commission: "Asher P. Nichols, Marshall B. Champlain, Homer A. Nelson, Albert Haight and Norman M. Allen are hereby appointed commissioners to examine the subject of the taxation of lands upon the Buffalo Creek, Allegany and Cattaraugus Indian Reservations, in the counties of Erie and Cattaraugus, under chapter 254 of the Laws of 1840, and chapter 166 of the Laws of 1841, or other laws, and report to the next Legislature a proper and equitable plan for the adjustment and settlement of the same, as between the State, the said counties and individuals."

"The commissioners appointed, under and by virtue of the provisions of chapter 715 of the Laws of 1871, to examine the subject

of taxation of lands upon the Buffalo Creek, Allegany and Cattaraugus Indian Reservations, and to report a plan for the equitable adjustment and settlement of the same, as between the State, the counties and individuals, are hereby authorized to report to the next Legislature, and Nelson K. Hopkins is hereby appointed as one of said commissioners in place of Asher P. Nichols, absent from the State."

The commission thus authorized and appointed have, with great care, examined all the different acts of the Legislature pertaining or relating to said Indian Reservations, together with the records, history and reports of the suits and decisions had and made in reference thereto, and find that the facts are substantially as follows :

HISTORY OF THE TAX.

In 1840, the Legislature of that year, by chapter 254, directed a tax to be levied on the Indian Reservation lands lying within the counties of Erie and Cattaraugus, viz.: Buffalo Creek Reservation, Allegany and Cattaraugus Reservations, for the purpose of opening roads through such reservations; and in 1841, chapter 166, a further act was passed directing the supervisors of said counties to appoint commissioners to make surveys, open roads and build bridges on these reservations, and to defray the expenses of the same, directed a tax to be levied on the reservation lands during the years 1841, 1842 and 1843. Of the taxes so directed to be levied by said act, the sum of five thousand dollars per year was to be levied on the Buffalo Creek Reservation, five thousand dollars per year on the Cattaraugus Reservation, and four thousand dollars per year on the Allegany Reservation.

The requirements of the two acts of the Legislature of 1840 and 1841 were complied with, and taxes were levied during the years 1840, 1841, 1842 and 1843; and above and beyond the taxes especially authorized by said acts, the supervisors of the respective counties of Erie and Cattaraugus also levied taxes upon such reservations for general town and county purposes. The amount of taxes levied upon all of said reservations for general purposes was less than four thousand dollars in both of said counties.

None of the taxes levied under the acts of 1840 or 1841, or those levied for general purposes, were paid, and the treasurers of the counties of Erie and Cattaraugus returned the same to the Comptroller of the State, who advanced the money on the same, and at the

tax sale of 1859 sold these several reservations for the non-payment of these taxes to reimburse the State. At the time of the levy of these taxes under said acts, all of these reservations were in the possession of the Indians, but all of them by treaties then existing were to be surrendered to the whites, and the acts of 1840 and 1841 were passed in the expectation that each of these reservations would, at any early day, be settled and occupied by the whites, and the Indian occupancy and title be extinguished. By subsequent treaties the Indians were allowed to and still retain the possession and occupancy of the Allegany and Cattaraugus Reservations, but the Buffalo Creek Reservation passed into the hands of the whites, and was speedily settled and divided into farms. The Court of Appeals, in an action brought to determine the legality of these taxes levied and assessed upon these reservation lands, having decided that the same was legally assessed and imposed, the owners of the lands upon the Buffalo Creek Reservation came forward on the last day for the redemption of the same in 1861, and redeemed their lands and paid the taxes assessed and levied thereon under the acts of 1840 and 1841.

HISTORY OF THE SUIT.

After the sale of the lands embraced in these reservations in 1859, Robert Dennison, the Comptroller of the State, agreed upon a statement of facts, upon which the case was submitted to the General Term of the Supreme Court of the Third district, Fellows et al. being plaintiffs and the Comptroller and Thomas W. Olcott, a purchaser at the sale, were defendants, and in which the plaintiffs asked to have the sale of 1859 and the tax set aside as illegal and void.

It was decided in favor of the defendants, and an appeal was taken to the Court of Appeals, and the decision of the General Term in the main affirmed. (See 23d N. Y. Reports, page 420.) A further appeal was then taken to the Supreme Court of the United States, and the decision of the State courts was reversed. (See 5th of Wallace, U. S. Reports, 761.)

The Supreme Court of the United States held,

“1st. The Indians being in possession of the land, their ancient and native homes, the enjoyment of which had been secured to them by a treaty made by the United States. The State in which the lands lie have no right to tax the lands, even for the special purpose of surveying and opening roads and building bridges.”

2d. "The statutes of the State directing such tax to be levied and the land sold for its non-payment is void."

In 1864, the matter of adjustment as to the taxes levied under and by virtue of chapter 166 of the Laws of 1841, between the counties and State, was brought before the Legislature and the whole matter examined and reported upon. (See Senate Document No. 30 of 1864.)

The result of such examination and report was the passage of an act by that Legislature, chapter 81 of the Laws of 1864, the second section of which reads as follows :

"§ 2. The Comptroller is required to credit to the counties of Erie and Cattaraugus respectively the amount of the taxes assessed upon such lands in each of said counties, pursuant to said chapter 166 of the Laws of 1841, with the interest accumulated thereon and the expense of the former sale of said lands, and no part of such taxes shall again be charged to either said counties or to any town therein."

• VIEWS AND RECOMMENDATIONS OF COMMISSIONERS AS TO THE EQUI- TABLE PLAN OF ADJUSTMENT.

The various tribes of Indians occupying reservations within this State hold the same by virtue of treaties made with the State and United States, by which they have the right to the occupancy and possession of the lands, free and clear from any taxation or burden imposed from any source other than such as they impose upon themselves, and to make their own laws and maintain separate and distinct governments of their own.

The counties in which such reservations are located have no jurisdiction or control over the lands or individuals residing upon the reservation lands whatever.

The State and general governments have always assumed the charge and control of the Indians and the reservations, subject to the provisions of the treaties existing, and have ever regarded them as the wards of the State and general government. The general and State governments grant them annual annuities, and the State has, from year to year, made appropriations for necessary improvements upon their reservations, and for roads and bridges, and for the support of schools among them, and have, as they of right and in justice should do, assumed the care and guardianship over them, independent of the counties in which the reservations are situated.

The taxes levied upon the reservations in question, which have been declared illegal and void by the Supreme Court of the United States, were levied by virtue of the requirements of the special acts of the Legislature of this State, above quoted, and were for the special purpose of making roads and bridges upon the reservation lands occupied by the Indians for their use and enjoyment; and inasmuch as the State has heretofore and in all like cases assumed the care, direction and burden of like improvements upon the different reservations of the State. Your commissioners can see no reason why the burden of these improvements should not be borne by the State in these cases.

The matter as to the adjustment and settlement for the taxes levied under and by virtue of chapter 166 of the Laws of 1841, as between the counties and the State, having been brought before the Legislature of 1864, and by that Legislature fully settled and adjusted, as appears by the section of the act hereinbefore quoted, and on the basis that the same should be borne by the State; and inasmuch as more than thirty years have elapsed since the taxes were levied, and the liability incurred, your commissioners are of the opinion that it would be unwise and unjust to the counties interested to interfere with or charge the adjustment so made, and would therefore recommend that the adjustment as to the taxes levied under the act of 1841 be confirmed, and that the same rule of adjustment be applied to the taxes levied under and by virtue of chapter 254 of the Laws of 1840.

As to the individuals residing upon the Buffalo Creek Reservation, who redeemed their lands, there has never been any settlement.

These taxes were levied under and by virtue of acts of the Legislature, passed in 1840 and 1841, hereinbefore referred to, and at that time the Indians held the title and occupied the lands. They refused to pay the tax, and it was therefore returned to the Comptroller, who, in 1859, and after these lands had passed into the hands of the whites, advertised and sold these lands for the non-payment of these taxes. The land-owners being thus warned of an incumbrance upon their lands, applied to the courts to have the tax and sales made thereunder set aside, but while the suit was still pending, the last day for the redemption of their lands came around, and many (but not all) of the owners, in order to make sure of their lands, came forward and redeemed them. Subsequently they obtained a decision from the Supreme Court of the United States, setting aside the sales and

declaring the tax void. It appears to your commissioners that, under the circumstances, the individuals who so redeemed their lands, so sold for the non-payment of said taxes, ought, in equity, to have the same refunded to them by the State.

That, as to the taxes levied upon such reservation lands during said years for general town and county purposes, there was no authority under general or special acts to levy the same, and it was clearly erroneous. The error was committed by the board of supervisors of the respective counties, and the taxes so levied were also advanced by the State to the treasurers of the respective counties, and the amount thereof inured to the benefit of the said counties. That the amount of such taxes ought to be refunded to the State by the respective counties.

All of which is respectfully submitted.

HOMER A. NELSON.

ALBERT HAIGHT.

January 23d, 1873.

STATE OF NEW YORK.

No. 61.

IN SENATE,

March 17, 1873.

COMMUNICATION

FROM THE COMPTROLLER OF THE CITY OF NEW YORK, IN REPLY TO SENATE RESOLUTION REGARDING MARKETS.

STATE OF NEW YORK:

SENATE CHAMBER,
ALBANY, *March 3, 1873.* }

On motion of Mr. TIEMANN,

Resolved, That the comptroller of the city of New York be requested to communicate to the Senate a statement showing the expenditures and revenues of the various public markets of the city, and any other information respecting said markets that may, in his judgment, be useful in framing proper legislation on this subject.

By order.

CHAS. R. DAYTON,
Clerk.

To the Honorable the Senate:

In compliance with a resolution of the Senate, whereby the undersigned is requested to communicate "a statement showing the expenditures and revenues of the various markets of the city, and any other information respecting said markets that may, in his judgment, be useful in framing proper legislation on this subject," the following statements and information are respectfully submitted:

The present comptroller assumed office in the fall of 1871. For a comparison of results with the year 1872, the year 1870 is taken.

The total number of employes in 1870, was	84
The total number of employes in 1872, was	42
Reduction in number of employes.....	<u>42</u>

or just *one-half*.

The cost of these employes in 1870, was	\$82,234 00
The cost of these employes in 1872, was	45,666 00
Showing a <i>reduction</i> in annual salary of.....	<u>\$36,658 00</u>

or nearly 45 per cent.

Schedule A shows this matter in detail.

The total receipts in 1872, were	\$383,862 96
The total receipts in 1870, were.....	373,484 08
Showing a gain in 1872 over 1870 of	<u>\$10,378 88</u>

The total expenses in 1870, were.....	\$83,417 33
The total expenses in 1872, were.....	\$69,677 62
Less the difference paid for repairs in 1872 over 1870.....	7,835 09
	<u>61,842 35</u>

Showing a reduction of 1872 over 1870	<u>\$21,574 80</u>
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Schedule B shows the receipts and expenditures in detail.

Schedule C shows the receipts and expenditures of each of the markets of the city for ten years past, from 1863 to 1872, both inclusive, as follows:

Markets.	Receipts.	Expenditures.
Washington.....	\$988,743 04	\$211,048 83
West Washington.....	911,226 07	114,529 75
Fulton	498,596 68	106,380 37
Franklin.....	34,825 67	39,420 75
Catherine.....	68,404 52	49,522 59
Clinton.....	107,438 88	58,149 52
Gouverneur.....	7,539 99	30,436 18
Centre.....	103,162 36	55,253 53
Jefferson.....	61,327 55	48,177 08
Essex.....	50,987 17	40,644 92

Union.....	\$19,510 76	\$37,458 10
Tompkins	55,862 55	43,492 94
Eighteenth Ward	12,142 25	10,559 50
Total	\$2,919,767 49	\$845,074 06
Total receipts	\$2,919,767 49	
Total expenditures.....	845,074 06	
Net revenue for 10 years.....		\$2,074,693 43

This is equal to 4 86-100 per cent per annum on a valuation of \$4,267,374.

Estimating the value of the market property ten years ago at three and a half millions, if it had been then sold and the proceeds vested at six per cent, the interest would have amounted to something more than the net receipts, as shown above.

Within the past thirty years the sale of flesh meats has gradually been practically exempted from the ancient claim of the corporation, to hold as one of its franchises the public markets and the right to sell produce therein.

The standholders in the markets joined earnestly with the city authorities to resist attempts to sell meats in other places than the regular corporation markets. After years of conflict, the more liberal policy prevailed, and now anybody may sell meats anywhere in the city without hindrance.

In the process of time there has grown up about some of the oldest of the public markets an enormous business. The habit of people to go there to buy has given value to what is known as the good-will of the stands, and property of private ownership surrounding the markets has increased in value, and has adapted itself in its uses to the business of the market.

The market and its neighborhood have become a great bazaar, more thronged and more densely occupied than any other space in the city. This is especially true of Washington market, the great center of the business. While other markets have, to a greater or less degree, suffered from the open competition in the sale of meats, Washington market has attracted a still increasing volume of business, and is among the greatest marts of the world. Its regular business is not less in amount than one hundred millions of dollars per annum. From time to time efforts have been made to compel

the sale of this property and to close the market, but they have always failed; the movers in them not having fully realized the magnitude of the task they had undertaken, or the extent and value of the interests their success would disturb.

It is difficult to drive away a whole neighborhood of homogeneous business that has been growing up for a century. If it could be done, it is very doubtful whether it ought to be. It is said that the crowd and throng about Washington market obstructs traffic and passage, and while this is true, it shows the extent of the business that assembles there. Instead of driving it away, its accommodation should be intelligently considered and provided for. In the older cities of Europe public markets are still retained. In London, Covent Garden market and Billingsgate are still thronged after the lapse of centuries, and are situated in the densest part of the city. It is so with La Halle Centrale and the markets of Paris. There is no reason why business in the supply of food should be subordinate to any other business; surely, none is more important.

Such, substantially, are the views of those who have steadily opposed the periodically recurring efforts to sell the Washington market property, and to obliterate its business.

There is no more orderly and upright class of business men in the city than those engaged in the markets; they number about ten thousand, supporting other thousands depending upon them.

There are in the markets several standholders who have occupied their stands for more than fifty years. These stands descend from father to son, and the good-will of one of them, that has been long and honestly maintained, is as valuable proportionally as is that of a hotel, a dry-goods, iron or other business. The good-will of one of these market stalls or stands, for which a few dollars per week is paid as rent to the city, is valued according to its situation, from nothing up to \$5,000, and as there are, in all the markets, nearly two thousand stands, including those outside the markets, their total value is not inconsiderable. It may readily be seen that it would be difficult to dispose of this property without some recognition of the marketmen's views of their interests.

A review of the schedules herewith submitted shows that for the past ten years the receipts of all the markets, except four, have been greater than the expenses. These four are the Eighteenth Ward, Gouverneur, Franklin and Union. In 1872, the revenues of the latter were brought up and now exceed its expenses. In addition, it

now furnishes accommodation for a police station and bell tower, worth to the city \$8,500 per annum.

When the present comptroller took office, the market buildings were all in a wretched condition. They were filthy, the sewers and vents were choked and caved in, and things in every respect in the last stages of decay.

Those who had charge of them had for years employed a set of most corrupt men as their subordinates, and there was scarcely a standholder who had not been the victim of official plunder.

It is difficult to realize the condition to which the holders of market stands were reduced. They were mercilessly robbed, openly, and if resistance was made, the stands were taken away and given to political favorites, and the goods seized or thrown into the street.

Respectable men and women, who had clung to their stands in the market as their only means of livelihood till they were ruthlessly expelled, appealed with eloquence to be restored to their rights. One would scarcely believe that such a state of things could exist in New York for a day.

There was no discipline, no order, no right. Every man stood, as it were, constantly on guard to protect his property from official rapacity. There was no immunity, and no safety.

This has been all changed. The exertions of the superintendent, Mr. Thomas F. Devoe, a much experienced and esteemed market-man, have been untiring. The market buildings have been somewhat repaired; they are clean; those placed in charge are intelligent and upright men; the business proceeds by system and order; the standholders feel a sense of security and relief, and they evince their gratitude for the work that has been done for them, incomplete as it yet is. Seizures of unwholesome meat have been made until the purchaser can now buy his marketing without apprehension of unwholesome food, and it is an admitted fact that the products of the markets have not for years been so abundant and wholesome as at this time.

The cost of lighting the markets has been reduced from \$2,720 in 1870, to \$1,439.98 in 1873. The business is prosecuted as quietly and steadily as is possible in buildings that are so old, so crowded and so inconvenient.

The whole work of reorganizing the markets, as respects public and private interests, cannot be thoroughly accomplished till an adequate policy is adopted. The old structures are cramped and insuf-

ficient; where markets are required, new structures should follow, well arranged to accommodate the business. The time has arrived when a new departure must be taken; the present condition of the buildings is very unsatisfactory; repairs are but temporary expedients. Some of the markets, at least, must be rebuilt, and as they are under public management in rebuilding, the upper stories should be so constructed as to accommodate public stations or armories, or satisfy other public requirements.

With the view of opening the way to intelligent action on this subject, I would respectfully recommend:

1st. As respects Gouverneur, the Eighteenth Ward and Franklin markets, the repeal of that portion of the law, chapter 574, section 9, Laws of 1871, that makes it a condition of the sale of market property that it shall be maintained as a public market for at least ten years; because such a restriction would embarrass the sale of property which has become useless as a market.

2d. That Gouverneur and Franklin markets, and also the Eighteenth Ward market (unless there be some legal obstructions to the sale of the latter), be sold by the Commissioners of the Sinking Fund to the highest bidder, after due public notice, and that other public markets, as from time to time they are not required by the public convenience, a fact which is determined when the receipts are less than the expenditures, be sold in the same manner.

3d. That the maintenance and repairing of the markets be placed under the charge of the Bureau of Markets. The superintendent of markets is the head of this bureau, and daily visits and superintends them. He knows their wants, and the necessary repairs will be expeditiously, intelligently and economically done under his supervision.

With very great respect,

AND. H. GREEN, *Comptroller*.

Dated NEW YORK, *March* 18, 1873.

SCHEDULE "A."

Table showing the number of employees in the various markets during the time specified.

MARKETS.	1870.			1872.		
	Employees.	Amount per annum.	Total.			
Washington	2 Collectors..	\$1,800	\$3,600	1 Collector..	\$1,800	\$1,800
"	1 Collector ..	1,500	1,500	1 Collector...	1,500	1,500
"	2 Clerks	1,500	3,000	1 Clerk	1,500	1,500
"	1 Clerk	1,000	1,000	1 Clerk	1,000	1,000
"	10 Sweepers ..	600	6,000	6 Sweepers ..	600	3,600
"	8 Cartmen	4 per day.	3,756	8 Cartmen	4 per day.	3,756
West Washington	1 Collector ..	1,800	1,800	1 Collector...	1,800	1,800
"	1 Clerk	1,500	1,500	1 Clerk	1,000	1,000
"	1 Clerk	1,000	1,000	8 Sweepers ..	600	1,800
"	9 Sweepers	600	5,400	1 Cartman ..	4 per day.	1,252
"	2 Cartmen	4 per day.	2,504			
Fulton and Franklin...	1 Collector ..	1,800	1,800	1 Collector..	1,800	1,800
"	3 Clerks	1,000	3,000	3 Sweepers ..	600	1,800
"	3 Sweepers	600	1,800	1 Cartman ..	4 per day.	1,252
"	3 Cartmen	4 per day.	2,504			
Cather's, Clint. & Gouv.	1 Collector ..	1,500	1,500	1 Collector..	1,500	1,500
"	3 Clerks	1,000	3,000	1 Clerk	1,000	1,000
"	5 Sweepers	600	3,000	3 Sweepers ..	600	1,800
"	1 Cartman	4 per day.	1,252	1 Cartman ..	4 per day.	1,252
Centre and Jefferson...	1 Collector..	1,500	1,500	1 Collector ..	1,500	1,500
"	2 Clerks	1,000	2,000	1 Clerk	1,250	1,250
"	6 Sweepers	600	2,400	3 Sweepers ..	600	1,800
"	1 Cartman	4 per day.	1,252	1 Cartman ..	4 per day.	1,252
Tompk. Essex & Union,	1 Collector ..	1,500	1,500	1 Collector ..	1,500	1,500
"	3 Clerks	1,000	3,000	3 Sweepers ..	600	1,800
"	6 Sweepers	600	3,600	1 Cartman ..	4 per day.	1,252
"	1 Cartman	4 per day.	1,252	Sup't mkts.,	5,000	5,000
Eighteenth Ward	1 Collector ..	1,500	1,500	C'k to mkts.,	1,500	1,500
"	1 Clerk	1,000	1,000			
"	3 Sweepers	600	1,800	43 Employees..		\$45,656
"	1 Cartman	4 per day.	1,252			
Sup't mkt., rents & fees,			3,000			
Superin't of markets ..			3,000			
Clerk to superintend't.			1,500			
Inspector of markets ..		4 per day.	1,252			
Sup't cleaning markets,			1,500			
Amt. sup't clean'g mkts.			1,500			
Total	84 Employees..		\$52,334			

RECAPITULATION.

Total number employees 1870—84 salaries	\$52,334
Total number employees 1872—43 salaries	45,656
Reduction in 1872, 43 salaries	\$6,678

SCHEDULE "B."

Receipts and expenditures of the various markets for the time herein specified.

MARKETS.	RECEIPTS.		EXPENDITURES.	
	1870.	1872.	1870.	1872.
Washington.....	\$186,647 41	\$144,568 80	\$21,225 00	\$34,030 77
West Washington	118,835 00	118,033 04	9,625 00	11,500 00
Fulton	64,494 09	68,486 65	10,921 00	6,331 78
Franklin	2,998 00	3,561 09	3,800 00	2,136 98
Catherine	6,766 80	7,095 30	4,487 33	4,820 00
Clinton	10,618 55	18,188 90	5,087 33	5,702 69
Gouverneur.....	749 00	894 00	2,933 33	1,333 33
Centre	11,101 73	11,540 18	3,685 33	3,105 66
Jefferson.....	7,233 60	7,062 50	5,685 34	1,983 33
Essex	5,122 10	5,477 40	3,604 00	3,273 68
Union	1,969 00	2,168 00	3,642 33	1,604 70
Tompkins	5,498 55	6,610 35	3,944 34	2,904 70
Eighteenth Ward	6,955 75	181 75	4,875 00	950 00
Total.....	\$373,484 08	\$363,862 96	\$63,417 33	\$69,677 62

Total receipts, 1872	\$363,862 96
Total receipts, 1870	373,484 08
Gain over 1870	\$10,878 88
Total expenditures, 1870.....	\$63,417 33
Total expenditures, 1872.....	69,677 62
Reduction expenditures, 1872.....	\$18,789 71

SCHEDULE "C."

Comparative statement of the various markets, showing the receipts and expenditures for the time herein specified. (1863 to 1872, inclusive.)

RECEIPTS.

YEAR.	Washington.	West Washington.	Fulton.	Franklin.	Catherine.	Clinton.	Gouverneur.
1863	\$43,139 43	\$66,471 43	\$32,143 26	\$3,080 00	\$3,716 61	\$7,549 00	\$806 55
1864	50,178 50	60,684 15	36,619 23	3,781 00	5,671 03	10,345 45	513 93
1865	51,747 00	61,373 09	38,914 00	4,105 00	7,720 29	10,636 38	668 03
1866	52,541 25	64,262 27	40,009 00	3,571 00	7,925 12	10,860 09	1,095 24
1867	85,579 80	87,264 41	36,459 00	3,768 50	8,171 68	11,020 57	772 40
1868	141,152 45	117,455 00	47,088 00	3,714 50	7,708 95	10,846 59	889 00
1869	141,762 80	112,681 00	69,200 43	3,014 25	6,980 90	10,967 35	682 75
1870	136,647 41	112,335 00	64,494 09	2,998 00	6,766 30	10,613 55	749 00
1871	141,430 60	114,776 68	65,164 75	4,222 33	6,648 40	11,319 09	889 69
1872	144,563 80	113,335 04	68,486 65	3,561 09	7,095 30	13,188 90	894 00
Totals	\$988,743 04	\$911,226 07	\$498,596 68	\$34,825 67	\$68,404 53	\$107,498 83	\$7,539 99

RECEIPTS — (Continued).

YEAR.	Centre.	Jefferson.	Raeex.	Union.	Tompkins.	Eighteenth Ward.
1863	\$7,483 19	\$3,836 80	\$2,563 57	\$1,391 06	\$4,156 03	.....
1864	9,785 45	5,318 15	4,718 37	1,609 80	4,780 25	.....
1865	9,867 25	5,445 00	5,000 88	2,057 00	5,559 25	.....
1866	9,597 50	5,604 00	5,126 65	1,943 00	5,535 74	.....
1867	10,753 46	6,094 75	4,896 95	2,203 25	6,298 34	.....
1868	11,177 24	6,651 50	6,533 05	2,128 65	5,747 50	.....
1869	11,668 85	7,505 50	4,827 45	1,965 00	5,838 40	.....
1870	11,101 73	7,233 60	5,122 10	1,969 00	5,498 55	\$6,955 75
1871	10,187 52	7,085 75	5,720 75	2,071 00	5,853 05	5,004 75
1872	11,540 18	7,062 50	5,477 40	2,168 00	6,610 35	181 75
Totals	\$103,162 36	\$61,327 55	\$50,987 17	\$19,510 77	\$55,862 55	\$12,142 26

SCHEDULE C.—(Continued).

EXPENDITURES.

YEAR.	Washington.	West Washington.	Fulton.	Franklin.	Catherine.	Clinton.	Gouverneur.
1863	\$14,152 08	\$8,488 68	\$7,801 05	\$3,494 45	\$3,970 54	\$3,483 58	\$2,778 34
1864	17,618 23	10,489 86	8,177 73	3,843 06	3,894 86	3,851 26	3,738 70
1865	18,530 60	10,530 45	11,655 60	3,838 46	5,325 37	4,814 84	3,114 95
1866	24,545 76	16,616 09	14,636 30	5,196 40	5,525 73	9,203 25	3,979 17
1867	24,519 44	14,392 53	13,606 46	7,558 41	8,057 50	7,397 23	3,684 58
1868	24,438 75	14,716 26	14,117 64	3,918 00	5,065 56	8,579 06	3,130 83
1869	30,679 75	10,540 00	9,847 90	3,500 00	4,849 00	6,089 25	3,100 00
1870	21,236 00	9,025 00	10,921 00	3,800 00	4,437 33	5,087 33	3,933 33
1871	21,337 50	9,737 50	9,516 75	3,600 00	4,300 00	4,200 00	3,700 00
1872	24,080 77	11,500 00	8,331 78	3,136 98	4,380 00	5,704 69	1,338 33
Totals	\$311,048 83	\$114,589 75	\$108,380 37	\$36,430 75	\$49,583 59	\$58,149 58	\$30,436 18

EXPENDITURES—(Continued).

YEAR.	Centre.	Jefferson.	Union.	Essex.	Tompkins.	Eighteenth Ward.
1863	\$6,191 15	\$3,808 15	\$9,165 18	\$3,491 71	\$4,822 39	.....
1864	6,346 00	6,973 28	3,371 02	3,010 53	3,540 74	.....
1865	6,346 88	4,663 68	4,530 87	4,060 37	4,757 17	.....
1866	6,554 68	5,771 71	6,815 43	5,496 89	4,978 30	.....
1867	6,558 06	6,316 71	3,405 45	5,093 31	3,849 03	.....
1868	6,581 35	5,373 41	4,714 34	4,496 63	7,333 87	.....
1869	4,633 35	4,345 10	3,798 75	3,549 55	4,293 30	.....
1870	3,035 03	5,835 34	3,798 75	3,604 00	3,944 34	\$4,376 00
1871	3,353 33	3,855 33	3,503 34	3,000 00	3,075 00	4,784 50
1872	3,106 66	1,963 33	1,604 70	3,373 69	3,504 70	260 00
Totals	\$5,333 77	\$48,177 08	\$37,403 10	\$40,644 92	\$43,493 94	\$10,539 50

SCHEDULE C—(Continued).

RECAPITULATION.

Receipts.

Washington market.....	\$988,743 04	
West Washington market.....	911,226 07	
Fulton market	498,596 68	
Franklin market.....	34,825 67	
Catherine market.....	68,404 52	
Clinton market.....	107,438 88	
Gouverneur market	7,539 99	
Centre market.....	103,162 36	
Jefferson market.....	61,327 55	
Essex market	50,987 17	
Union market.....	19,510 76	
Tompkins market.....	55,862 55	
Eighteenth Ward market	12,142 25	
	<hr/>	\$2,919,767 49

Expenditures.

Washington market.....	\$211,048 83	
West Washington market.....	114,529 75	
Fulton market.....	106,380 37	
Franklin market.....	39,420 75	
Catherine market	49,522 59	
Clinton market.....	58,149 52	
Gouverneur market.....	30,436 18	
Centre market.....	55,253 53	
Jefferson market	48,177 08	
Union market.....	37,458 10	
Essex	40,644 92	
Tompkins	43,492 94	
Eighteenth Ward market	10,559 50	
	<hr/>	845,074 06
Net revenue		<hr/> <hr/> \$2,074,693 43

SCHEDULE "D."

Valuation of Public Markets, as appraised.

Washington.....	\$729,250 00
West Washington.....	1,053,000 00
Fulton	374,000 00
Franklin	73,500 00
Catherine	108,000 00
Clinton	212,000 00
Gouverneur	28,000 00
Centre	215,000 00
Jefferson	235,000 00
Essex.....	301,624 00
Union.....	63,000 00
Tompkins	348,000 00
Eighteenth Ward.....	527,000 00
Total	<u>\$4,267,374 00</u>

THIRTIETH
ANNUAL REPORT
OF THE
MANAGERS
OF THE
STATE LUNATIC ASYLUM,

For the Year 1872.

TRANSMITTED TO THE LEGISLATURE, MARCH 20, 1873

ALBANY:
THE ARGUS COMPANY, PRINTERS.
1873.

STATE OF NEW YORK.

No. 62.

I N S E N A T E ,

March 20, 1873.

THIRTIETH ANNUAL REPORT

OF THE

MANAGERS OF THE STATE LUNATIC ASYLUM.

UTICA, *March* 10, 1873.

To the Hon. JOHN C. ROBINSON,

President of the Senate:

SIR.—We submit herewith the annual report of the Managers of the State Lunatic Asylum.

With great respect,

SAMUEL CAMPBELL.

FRANCIS KERNAN.

A. S. JOHNSON.

J. McQUADE.

S. O. VANDER POEL.

P. CLOGHER.

T. POMEROY.

G. B. ANDERSON.

J. WATSON WILLIAMS.

OFFICERS OF THE ASYLUM.

MANAGERS.

SAMUEL CAMPBELL	WHITESTOWN.
FRANCIS KERNAN.....	UTICA.
S. O. VANDER POEL, M. D.....	TOMPKINSVILLE.
J. WATSON WILLIAMS	UTICA.
ALEXANDER S. JOHNSON.....	UTICA.
THEODORE POMEROY.....	UTICA.
JAMES McQUADE	UTICA.
GEORGE B. ANDERSON.....	BOONEVILLE.
PETER CLOGHER.....	UTICA.

TREASURER.

EDMUND A. WETMORE.....	UTICA.
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RESIDENT OFFICERS.

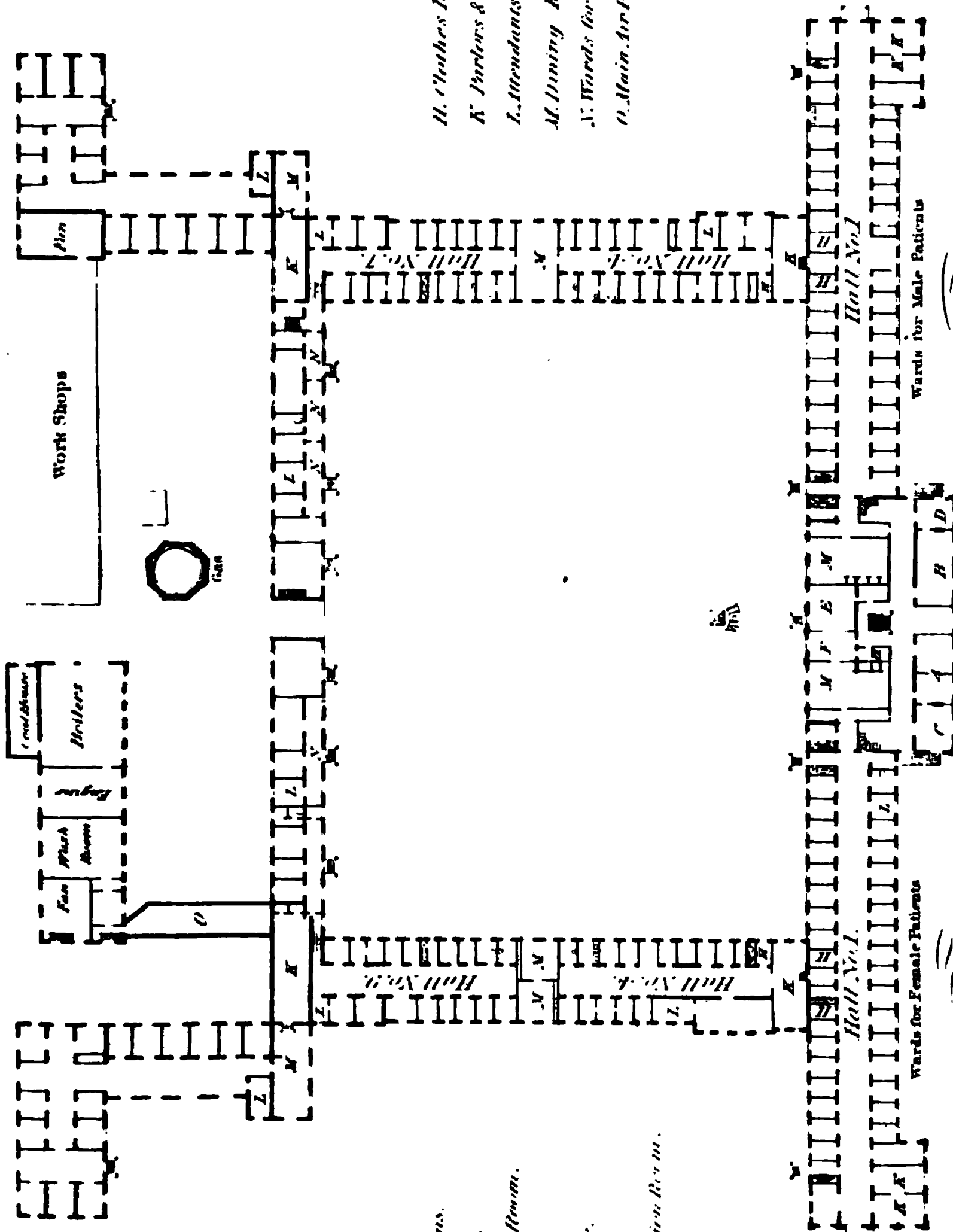
JOHN P. GRAY, M. D.....	SUPERINTENDENT AND PHYSICIAN.
JUDSON B. ANDREWS, M. D.....	FIRST ASSISTANT PHYSICIAN.
WALTER KEMPSTER, M. D.....	SECOND ASSISTANT PHYSICIAN.
DANIEL H. KITCHEN, M. D.....	THIRD ASSISTANT PHYSICIAN.
EDWARD R. HUN, M. D.....	SPECIAL PATHOLOGIST.
HORATIO N. DRYER.....	STEWARD.
EMMA BARKER....	MATRON.

CHAPLAIN.

REV. W. T. GIBSON, D. D....	UTICA.
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1944





A. Reception Rooms.
B. General Office.
C. Officers' Dining Room.
D. Private Office.
E. Stenographer's Office.
F. Maternity Room.
G. Female Reception Room.

H. Clothes Room.
K. Parlors & Day Rooms.
L. Attendants' Rooms.
M. Dining Rooms.
N. Wards for the Sick.
O. Main Air Passage.



NEW YORK STATE

LYNATHASSETM

Whole front 550 feet

THIRTIETH ANNUAL REPORT

OF THE

MANAGERS OF THE STATE LUNATIC ASYLUM FOR THE
YEAR ENDING THE 30TH DAY OF NOVEMBER, A. D. 1872.

The Managers of the State Lunatic Asylum present to the Legislature their report for the year 1872, together with the annual reports of the treasurer, and of the Superintendent.

On the 1st of December, 1871, there were 583 patients in the asylum. During the year ending the 30th of November, 1872, there were admitted 399. The whole number under treatment during the year was 982, of which number 142 were discharged recovered, 73 improved, 156 unimproved, 14 as not insane and 62 died. The per centage of recoveries was 35.59. The whole number of patients admitted since the first opening of the asylum is 10,621, of which 4,035 recovered, and 1,627 were discharged improved, showing an average recovery or improvement of more than one-half.

In their report last year, the Managers, as had already been done in 1866, called the attention of the Legislature to the decaying condition of the street fences about the asylum grounds. They stated that the probable expense of the necessary repairs would be about \$15,000. This estimate was founded upon the cost of materials then current. Since then a large advance has been made in the price of iron, and it will be necessary to add nearly a quarter of the estimated cost to

that estimate. The urgency of doing something for the security of the premises is so imminent that further delay will cause serious inconvenience and damage to property. The Managers, therefore, deem it their duty to be somewhat importunate, and respectfully urge the subject afresh upon the attention of the Legislature.

The hospital accommodations of the asylum, and the dining rooms for the disturbed class of patients, have never been sufficient or commodious. The most extreme and painful cases of sickness or accident have no suitable place of retirement from the crowd and interruptions of the wards, where they are not only annoyed, but are the cause of annoyance. The dining rooms were originally made of small dimensions, on the supposition that a large part of the disturbed class of inmates would not be able to associate with the others at meals. Experience, however, has shown that with few exceptions all the inmates may take their meals together at common tables, which is the most desirable way, in every aspect of order, management and economy. The dining rooms may be conveniently enlarged by lateral extensions on the rear wings. Suitable hospital accommodations may be economically provided by a few appendages to the main buildings. In connection with these improvements, there is also a great need of additional verandas or exercising and day rooms for the use of the more disturbed patients. Careful estimates of the expense attending such additions and alterations show that the hospitals and dining rooms proposed would cost \$10,700, and the verandas or exercising rooms \$6,400, in all \$17,100. We hope that it may be deemed proper, as it is certainly much needed, to make such an appropriation as will enable the Managers forthwith to provide the accommodations contemplated.

At the time of making the estimates for the new water supply for the asylum, the State Engineer expressed a doubt of the capacity and strength of the old iron pipe from the force pump on the Chenango canal to the asylum to meet the increased pressure necessary to pass the more abundant supply. It was but of three inches outside diameter, and already long in use, and its office was to carry water up a considerable grade. But it was concluded, on consideration, to leave its sufficiency to the test of experience, and the estimates, therefore, allowed nothing to meet such a possible necessity. Time has confirmed his doubt, and the old pipe soon began to betray its weakness and insufficiency. It did not pass a sufficient quantity of water, and the pressure upon it and decay produced leakages and parted the joints and connections, so that a new, larger and heavier pipe was the only resource to secure the full benefit of the considerable expenditure already made. A pipe of six inches diameter, extending from the force pump to the asylum, has, therefore, been laid during the last season, which is now in use, and passes with facility an abundant quantity of water. The expenditure for this necessity was \$5,563.68, as appears by the treasurer's report, which is exclusive of \$1,719.79 for a steam pump and its connections, and the extension of the branches of the pipe, and the necessary hydrants for fire protection, which has been paid since the date of that report; in all amounting to \$7,285.47.

It will be observed, also, that the report of the treasurer shows a considerable expenditure for keeping the buildings, fixtures, conveniences and appendages in good repair. The repainting of the roofs and of other parts, the renewing and separation of the coils of the heating apparatus (worn out or impaired by about twenty years of service), the relaying of

floors, and the repairing and restoration of nine bath rooms, water closets and washing rooms, all very necessary to be done without procrastination, have burdened the Managers with more than an ordinary outlay for such purposes. They have stated in previous reports that expenditures of this character should never be a charge on the current funds received for the board and care of patients. The amount advanced for the purposes above enumerated, as appears by the treasurer's report, is \$16,207.31, to reimburse which, together with other expenditures herein referred to, we respectfully ask for an appropriation as heretofore accustomed.

It is evident to the Managers, and to all who are conversant with the duties and labors of the medical officers of the asylum, that their number is inadequate to discharge with the greatest efficiency the onerous charge which a daily attendance upon five or six hundred inmates in different stages of disease imposes on them; including in the consideration the necessary work of recording cases, making daily minutes of them, conducting a large correspondence, and preparing such tabular and statistical information and reports as a due and intelligent performance of their duty requires. Much of this sort of service has to be done at night in consequence of the unintermitting daily duties of visiting the wards, examining cases for admission, and answering the various calls of the relatives and friends of patients, of public officers, and of general visitors seeking information or the gratification of a reasonable curiosity. An additional assistant to the three now allowed by law is indispensable to such a routine, division and alternation of duty as seem to be requisite for its thorough performance, and for the relief of those who are now oppressed by severe and burthensome labor, and whose compensation is not fairly

adjusted to it. A fourth medical assistant would enable the superintendent so to arrange and alternate the office duties as to alleviate most sensibly the burthen which overworks the medical officers. We hope that the Legislature will concur with us in the propriety of authorizing the Managers to appoint an additional assistant, and to fix a snitable compensation for his services, as well as to augment the compensation so hardly earned by the other medical officers of the asylum.

The Managers deem it timely and proper to call the attention of the Legislature to some embarrassing questions affecting the important charitable institutions dependent on the bounty and control of public authority, and which happen particularly to concern the institution under their immediate charge. The superintendents and officers of such charities are appointed to perform particular trusts and duties prescribed by law, and are properly held to the strictest performance of them within the reasonable powers and capacity of qualified men. To exact more of them is not only inconsiderate and unjust, but subversive of the very purpose of their appointment. They cannot do everything; they can only do their particular duty. They are hindered in doing this by the frequent, and frequently unnecessary calls of judicial and executive authority, which they cannot disregard without a real or technical disobedience of the law, which itself ought to protect them against a conflict of duties, and give weight, consideration and preference to the superior duty. There are two particulars of special grievance. 1. Such officials are often required, by subpoena or otherwise, to become witnesses as experts in cases of the alleged insanity of persons not under their care or observation; and are required, by a process for contempt, to obey the call, whatever may be the exigency of

special duty in their official trusts. They are legally subject to be summoned away from that duty by any of the courts of high civil or criminal jurisdiction, by a surrogate, or even by a justice of the peace, to express a mere opinion, under oath, respecting cases of which they have no proper opportunity for a particular knowledge. Every day they are liable to such a summons. Every month, perhaps, they are actually summoned; and whatever may be the positive necessities of their office, those must be sacrificed, under the penalty of a contempt, and often for days together, to the capricious and froward demands of an attorney, or of a thoughtless or contriving party in a suit seeking after favorable professional witnesses. It may not be amiss to observe that this matter of the testimony of experts, especially in cases of alleged insanity, has gone to such an extravagance that it has really become of late years a profitable profession to be an expert witness, at the command of any party and ready for any party, for a sufficient and often an exorbitant fee; thus destroying the real value of the testimony of unbiased experts. Vaunted and venal expertness is usually worthless for evidence; and yet such testimony is getting to be in great demand. One expert, whether real or assumptive, is set up against another; and finally it will result that, by competition, pretending inexpertness will prevail, by numbers, against the real expertness of those few thoroughly qualified men whose judgment is the mature experience collected from years of daily study and practical observation. Obviously it does not become States, or great tribunals, or public justice, that the testimony which settles matters of weight should be trifled with as it is for an emolument; and experts should only be called, as formerly they were, by the court itself, on its own judgment of the neces-

sity requiring them ; and when called at all, they should be the sworn advisors of the *court and jury*, and not witnesses summoned in the particular behalf of any party ; nor should they be permitted to receive either fee or reward from any party, but only from the court or the public. Capable judges are competent to say, in any case, whether the court requires the evidence of experts for its information in matters of technical knowledge or science, and also to say who shall be particularly summoned for his acknowledged expertness ; and should, therefore, have the control of that sort of testimony, which is only allowable to enlighten the court and jury, and not to be the ordinary captious weapon of attorneys and counselors, nor to be the theoretical, one-sided opinions of sciolists, founded on some hypothetical case which deflects more or less from the actual truth of the real case in question. By a deviation from the old strictness of this rule, the testimony of opinions is gradually gaining control over the testimony of facts ; and what ought only to affect the instructions of the court on points of law, becomes weightier with the jury than the evidence of facts, which it is their peculiar duty and province to decide upon under proper instruction as to the law, with which juries are not ordinarily supposed to be particularly conversant. *Delege judices, de facto juratores, respondeat.* The judges pass upon the law ; the jury upon the facts. True and impartial experts enlighten the judges, who instruct the juries ; and the whole virtue of expertness lies in the light it may shed upon obscure questions of a scientific or technical character, in which judges and juries are not supposed to be versed. Trials of criminals and questions about last wills have lately assumed the character of contests of expertness, so that the

office of the court and jury seems to be narrowed to a judgment, not upon the value of proved facts, but on the weight of conflicting opinions. Such a perversion of law and testimony results in constantly calling away from their public duties those who have a repute of superior skill and experience, who are often made witnesses under circumstances that impair the due weight of their opinions, and are adverse to a fair expression of them. Some check should be interposed by law to prevent the frequent calls upon the medical officers of public charities as expert witnesses, by limiting the discretion of calling them to the court rather than to the parties to a controversy, or their attorneys and counselors.

Much interruption of the necessary official duty of the medical officers also arises from the somewhat summary granting by the courts of writs of *habeas corpus*, requiring them to leave their proper duties as public officers and to make returns to such writs, by a personal attendance with those in their custody, before some judge or court distant from the proper place of their official duty. This evil is double: 1. By requiring the frequent absence of the medical officer from his proper post. 2. By requiring the bodily presence of his ward, well or ill, at some distant or inconvenient place. Both evils are apparent on the mere statement of them; and both may be remedied without any harm to public or private liberty or rights.

As to the first, a sheriff or some other civil officer, or some deputed servant of the court or judge, might be required to serve the writ or process, and at the same time to take charge of and produce in person the subject of the writ, when that is deemed necessary for the ends of justice and liberty, with an explanatory sworn statement in writing of the superintendent

or other medical officer of the asylum or hospital, specifying the original and present cause of detention; all which would doubtless be a sufficient and satisfactory return under all ordinary circumstances. But it is a most reasonable presumption that a person in the charge of a State institution is already sufficiently in the charge and custody of the State itself, for all purposes of personal safety and protection; and therefore, particularly, if not a criminal, should not be forced from his seclusion, until sufficient cause be shown for a rude and summary interference upon the return of such a preliminary process as is suggested. The State should so far confide in the officers of its own public charitable institutions as to take their returns of facts on affidavit as presumptive evidence of the truth; and should only put them to further question on good contradictory evidence impeaching the return. The result of such a proceeding would probably be, in nine cases out of ten, that no further return would be required by the court or judge, and that the patient himself would not be subject to personal disturbance, nor the medical officer to distraction or absence from his duties. It should be considered, also, that the forced personal appearance of a lunatic or imbecile on the usual process is often a serious and sometimes a fatal obstruction to his cure, or at least an impairment of his present health; and even if the personal appearance of the medical officer in charge of him should be absolutely required for the purposes of the return, the personal appearance of the subject of the writ should not always be imperatively demanded.

There should obviously be a discretion lodged somewhere, to meet the exigencies of special cases; and it would seem proper that the court or officer granting the writ should have

that discretion, exclusive of the parties requiring its issue and enforcement.

Whoever officially grants such a writ, on proper cause shown, should be required to make it returnable before some proper judge or officer in the immediate vicinity of the subject of it and his legal custodian, so that the return might be expeditiously made, with as little interference with the public duty of the custodian and the personal welfare of his ward as will fairly meet the exigency. Such a provision as this would prove very serviceable in a multitude of cases, without any perceivable detriment to public or private rights.

The purpose of a writ of *habeas corpus* is to secure the liberty of every citizen from unlawful infringement. Although all confinement is an infraction of personal liberty, yet the State demands and authorizes confinement in particular cases, for the good of the community, for health, for safeguard, for punishment of crime. The writ should not, however, be allowed to defeat the purpose of the State. In the case of a lunatic confined to an asylum established by the State, and under its special charge and control, the presumption must necessarily be in favor of the State and its officers, that the confinement is for proper cause. Unless it be first manifestly shown, by abundant positive proof, and not by mere suggestion, that the confinement is legally unwarranted, no summary process should be suffered to break up the discipline of the State in its own institutions; nor, especially, to carry away, on short notice and peremptorily, its own officers, charged, by a sort of attorneyship, with the duties of the State, and for that purpose representing itself. Such a proceeding is stultifying: it is giving and revoking authority in the same breath.

The best records show, quite conclusively, that the commitments, to State hospitals and asylums for the insane, of persons who are not insane when committed, or who are detained after recovery, having been insane when committed, or who are not at once discharged when discovered to be sane, are so uncommon that not a case can be fairly vouched; and the final judgments in cases of *habeas corpus* affecting lunatics confined in State hospitals almost invariably result in returning the subjects of the writ into the same custody, often with an aggravation, temporary or permanent, of their malady, caused by their summary removal from the asylum and their forced appearance before the officer or court requiring their presence. There is a manifest inhumanity in thus publicly exposing human wretchedness so real as that of insanity. There should therefore be some modification of the proceedings in the case of the State institutions of a charitable purpose, so that a certificate or an affidavit of the chief officer or of his assistants, or a personal examination by some competent judicial officer in the vicinage, should *prima facie* be a sufficient legal return; and that before any personal appearance, either of a superintendent or of his ward, be positively demanded, the court or judicial officer should be abundantly satisfied by rebutting evidence that such a personal appearance is absolutely necessary for the ends of justice and right.

A modification adapted to such peculiar circumstances does not seem in any way to conflict with the purpose or principle of this humane writ. A strict compliance with its customary technical exigencies may often defeat its proper end. It should be made to subserve the purposes of both justice and humanity, if it can. In the case of many lunatics, death may release the victim of disease and interference before the most summary

law would do so. The quiet and seclusion so essential in such cases is abruptly disturbed, and the patient is prematurely sacrificed to an untoward technicality which, in such extreme cases, ought to lose its rigidity in favor of a crazed brain and insuperable weakness.

The Managers conclude their report, expressing their satisfaction with the discipline and management of the institution, and commending highly the zeal, industry, fidelity and humanity of the medical officers, and all concerned, in the care, relief and cure of its numerous afflicted inmates.

SAMUEL CAMPBELL.

FRANCIS KERNAN.

S. O. VANDER POEL.

J. WATSON WILLIAMS. .

ALEXANDER S. JOHNSON.

J. McQUADE.

THEODORE POMEROY.

G. B. ANDERSON.

PETER CLOGHER.

TREASURER'S REPORT.

To the Managers of the State Lunatic Asylum:

The Treasurer of the asylum respectfully submits the following summary of his receipts and expenditures for the year ending November 30th, 1872:

RECEIPTS.

1871. Dec. 1.	Balance in the treasury	\$34,862 49
Dec. 1, 1871, to		
Dec. 1, 1872.	From State Treasurer, for officers' salaries.....	10,088 05
	From State Treasurer, for support of Mark Jack, an Indian.....	219 08
1872. July 3.	From State Treasurer, part of \$52,929.60, appropriated by chapter 733, Laws of 1872 (supply bill), to reimburse the fund for support and maintenance for moneys taken therefrom to make additional alterations and repairs to the buildings	10,000 00
1872. Sept. 9.	From State Treasurer, part of the appropriation of \$52,929.60, made for the asylum by chapter 733, Laws of 1872, as above ...	12,929 60
Dec. 1, 1871, to		
Dec. 1, 1872.	From sundry counties, for the support of patients.....	104,062 81
	From sundry private patients	54,433 72
	From the steward, for hides, pigs, coal, etc., sold by him	4,799 50
		<u>\$232,195 25</u>

PAYMENTS.

Dec. 1, 1871, to		
Dec. 1, 1872.	For provisions	\$62,920 03
	For clothing of patients (advanced)	11,537 78
	For grading, paving and sidewalks.....	6,152 91
		<u>\$80,610 72</u>
Carried forward.....		

Brought forward	\$80,610 72
Dec. 1. 1872. For the steward, for petty expenses.....	600 00
For officers' salaries.....	10,888 05
For city gas, including machinery expenses..	8,617 65
For household stores, soap, brooms, crockery, etc.....	4,482 67
For furniture of all kinds, including beds and bedding.....	6,687 61
For attendants, assistants and labor, including salaries of chaplain, engineer, apothecary, butcher, tailor, farmer, book-keeper, etc...	39,075 25
For additions, alterations and repairs.....	16,207 31
For fuel and lights, besides gas	8,708 38
For farm, barn, garden and grounds.....	7,567 49
For medicines and medical stores.....	4,652 15
For books, printing, stationery, etc.....	4,888 68
For miscellaneous expenses	3,206 96
For brick sewer to river... ..	115 87
For patients' miscellaneous expenses.....	1,485 32
For supply of water.....	5,565 68
For cash refunded to patients on leaving	108 07
	<hr/>
	\$196,767 86
1872. Dec. 1. Balance to new account.....	84,227 89
	<hr/>
	<u>\$282,195 25</u>

E. A. WETMORE,
Treasurer.

UTICA, *December 1, 1872.*

THIRTIETH ANNUAL REPORT

OF THE

SUPERINTENDENT OF THE NEW YORK STATE LUNATIC
ASYLUM, FOR THE YEAR ENDING NOVEMBER 30, 1872.

To the Board of Managers:

GENTLEMEN.—In compliance with the act organizing the
asylum, the following report of its operations during the past
year is respectfully submitted:

	Men.	Women.	Total.
Number of patients at the commencement of the year.....	811	272	583
Received during the year.....	209	190	399
Whole number treated	520	462	982
Daily average under treatment			588
Discharged recovered	78	64	142
Discharged improved	88	35	73
Discharged unimproved	99	57	156
Discharged not insane.....	12	2	14
Died	40	22	62
Whole number discharged.....	267	180	447
Remaining November 30, 1872.....	253	272	525

The number admitted this year is less than for a few years
past. We have, however, refused admission to a number of
private patients, but to none of the public class. The opening
of the Hudson River Hospital for the Insane at Poughkeepsie

has been a great relief to this institution, as few have been sent here from the river counties below Albany. We have admitted a large number of patients, and many chronic cases have been necessarily removed to enable us to do so. If, however, we could have confined the admission to acute cases presenting chances of recovery, we should have received a much smaller number.

Of those admitted, 107 were cases of chronic insanity, ninety of whom had been insane for over two years, and in twenty of those admitted the duration of the insanity could not be ascertained.

Of the whole number, twenty-seven were between sixty and seventy years of age; two were between seventy and eighty, and one was over eighty. Nineteen were cases of general paresis; thirteen were epileptics; two were paralytics, and seventeen were not insane; twenty-one had attempted suicide; four had committed and thirteen had attempted homicide, and two had attempted homicide and suicide; nine were brought in irons, and four came tied with ropes; one was so feeble as to be brought on a bed. Of those discharged, fourteen were not insane when admitted. Three of these were cases of feigned insanity to escape punishment for crime, and the rest were drunkards whose vagaries and violence were mistaken for insanity. All these were committed under public authority and on certificates of insanity, or trial by jury. On the other hand, no single instance of error in diagnosis occurred, either in public or private cases, where the family physician has made the examination and recommended the case to be sent to the asylum. As far as the facts go, they tend to show that there is greater security in trusting to the family physician,

who is familiar with those who employ him and feels a sense of the responsibility of sending his patrons to an asylum, than in transferring this duty to persons who have only a pecuniary interest in examinations of patients under application for orders of lunacy for commitment to asylum.

As to a jury in such cases, there could hardly be a greater farce than that of applying to twelve men, utterly unfamiliar with the subject, to enter final judgment on a question of science without even the benefit of a charge from a court.

Four years ago I recommended the institution of systematic pathological investigations, and an addition to the medical staff of a special pathologist, to carry out the work successfully. This measure was heartily seconded by your board and immediately brought to the consideration of the Legislature. Before the report was made, I submitted the subject to Governor Hoffman, and it met his cordial approval, and in his annual message for that year he recommended it to the favorable action of the Legislature. This recommendation was made after an amount of special investigation which seemed to justify the probability of useful results, and in view of the progress of medical science in the direction of such research.

By the unanimous action of the Legislature a bill was passed, authorizing the appointment of a special pathologist, and Dr. Edward R. Hun of Albany, who was well qualified for such a position by previous study in microscopy, accepted the place.

Among the prominent medical men whom I consulted in the inception of the scheme was Dr. J. J. Woodward, Assistant Surgeon, U. S. A. He not only expressed great interest in the project, but gave valuable advice and aid in the securing the instruments needed, and in the arrangement of the laboratory. All the necessary instruments have now been obtained,

and a laboratory and a photographic room have been properly fitted up. These arrangements include all that is required for chemical and microscopic examinations, for photography and for photo-micrography. For the latter work a heliostat was demanded, an instrument not easily obtainable in this country. Its object is to direct a ray of light through a small aperture continuously upon the same point. This allows of taking photographic negatives of microscopic slides, without constantly shifting the apparatus to follow the progress of the sun. On bringing the subject to the attention of Mr. Charles Fassaltdt, of Albany, a most ingenious watch and instrument maker, he made a heliostat which was subsequently perfected by his brother, Mr. John Fassaltdt. By this instrument we are able to throw a ray of light at the same angle upon a given point, through the entire day, and thus work with a steady and uniform light. The heliostat is described in the *Monthly Microscopical Journal*, vol. 1, No. 1, page 27; but the one made by the Fassaltdts has some improvements especially intended for the work to be done here. A large amount of preparatory labor has been necessary, but we are now prepared to go on vigorously.

Dr. Kempster, my second assistant physician, devoted considerable time to the study and practical work of photography, and has taken some twenty-five negatives of microscopic slides of brain tissue, a copy of each of which he has printed, and I present them as the first work performed here in this department.

Within a year some of the medical superintendents in the United States have expressed a determination to enter on similar investigations.

In a recent letter from Dr. W. A. F. Browne, late commissioner in lunacy for Scotland, and for many years a medical

superintendent, and now psychological consultant at the Crighton Royal Institution, Dumfries, he says: "Your arrangements for carrying out pathological research, upon an extended and strictly scientific system, are most laudable. My son, Crighton Browne, Wakefield, Yorkshire (1,600 patients), is busily engaged in applying all anatomical, microscopical, chemical and photographic means now at his disposal in the same direction which you have taken, and we most patiently await the results." We can but hope that investigations in this field will be inaugurated in the various institutions in the county, and thus the hospitals for the care of the insane become not only proper institutions for the detention and medical treatment of patients, but also centers from which medical science shall receive contributions of the highest value not only in regard to the knowledge and treatment of insanity, but also of nervous diseases generally.

We have continued the report of cases of death from year to year, with sketches characterizing them as faithful as possible, and giving in detail the *post mortem* results, hoping, by these annual contributions, to accumulate data which, after a while, may be valuable in general deductions touching the pathology of the various conditions of the insane. Two years ago we were able to add a preliminary report, by Dr. Hun, on examination of the urine, and this year we give a report from the same source, on special microscopic examination of brain and nerve tissue in cases. Though these investigations impose large additional labor on all the medical officers, we are satisfied they have a compensatory value. It is true these duties are not obligatory, and the officers receive no pecuniary compensation for services beyond those comprised in the ordinary range of duty, but they are rewarded for these labors by the

acquisition of additional knowledge, and by the consciousness of rendering the institution more and more valuable to the public. It will, undoubtedly, be admitted that a most important point in hospital observation is to reach, if possible, definite information in regard to the seat of the morbid process in insanity and the nature of that process. Indeed, it may be thought unnecessary to make this statement in view of the generally admitted fact that the brain is the part of the organism essentially involved. However, it must be equally admitted that beyond this general fact there is no special and definite pathology recognized.

It is not unusual or very rare to find physicians, even among those who have experience in asylums for insane, whose loose, vague and indefinite ideas of disease allow them to talk of moral insanity and of persons dying insane without disease of the brain. To acquire the data for studying the pathology and etiology of insanity, and they cannot be studied separately, we must first have a large accumulation of materials, gathered from many lines of investigation and in many directions of physical disease. Perhaps no disease, except such as is dependent on blood poisoning, has so wide a range of sympathetic disturbances as we find in insanity. The careful and scientific study of insanity comprises about the whole of the study of medicine. Almost every so-called disease may be found either in what are denominated causes, complications or sequences of insanity. In many cases it is difficult to determine the primary morbid process, whether in the brain, lungs or kidneys; and after death it is not always easy to assign the cause of death, even after a careful *post mortem* examination. Yet we find medical writers who have no practical or clinical knowledge of insanity, and who have never made a score of

post mortems in persons dying insáne, talk as confidently of the causes, pathology etc., of the disease as of measles or pneumonia; who, because they have independent opinions on every other disease, must necessarily know all about insanity. To one of this class, insanity was so simple and appreciable that a passing glance at masses of patients, in casually visiting asylums, enabled him to put them down in numbers as his own clinical cases, by which he was qualified as an expert in the jurisprudence of insanity. Yet I have before me a letter from a distinguished alienist, who has spent many years in patient clinical study and large pathological investigation, lamenting the little progress made thus far in the essential diagnosis of insanity *as a disease* and almost despairing of accomplishing anything when so little real interest is taken by the public, and so much unreal knowledge professed by medical writers who are in the way of finding the ear of the medical profession, and especially of medical students.

Hence, it is a proper function, and in our view should be a requirement of every hospital for the insane, to make a medical report for the purpose of massing facts for use in synthetic examination of the disease, as well as for generalizations, which can in no other way be made.

This course would not only be highly conducive to the advancement of science but also to the interest of the public in the elevation of institutions from places of mere custody to hospitals for the study and treatment of disease, and would arrest the growing tendency to the establishment of what are called private asylums, or retreats, for the board and care of insane, as a matter of pecuniary speculation.

It is probably too generally true that asylum are more places of custody than true hospitals for the sick, and that they are held as successful or unsuccessful largely in proportion to the scale of cost of support. It is also true that no institution for the insane in the United States has the requisite number of medical officers to discharge, competently, all the medical functions of such institutions, and have any time for reading, study and investigation, unless by trespassing on hours which should be given to sleep. The duties are so continuous and onerous that unless a medical man happens to have an exceptionally strong constitution he breaks down in the midst of his career, rarely living to complete a course of observation and place his accumulated experience in any useful form for the enrichment of medical science and the benefit of his successors.

We already have abundant illustrations of this parsimony in medical organizations at the cost of valuable lives given to untiring industry. From none of the distinguished medical superintendents of institutions in the United States, for half a century, have we received the results of their experience. Not a book upon insanity and its treatment, except the small work of Dr. Brigham, and that was written before he was superintendent of this institution. This is a striking comment on this point. However, until the public are able to see some fruits of medical research in a practical way, it is doubtful if we can hope for anything better.

The main questions in this direction are: will a larger number be cured or relieved if you bring up institutions to the character of hospitals, and have your efforts in anywise demonstrated this to be probable? From my own experience of twenty-two years, I think I am justi-

fied in answering both these questions in the affirmative. A larger proportion of acute cases recover now than formerly, and more recover after having passed into marked conditions of dementia. The general statistics will show, however, that the ratio of recoveries to the number received and the average population is lower. This is due to other causes—the character of the cases admitted, the tendency in all institutions to keep under care the most violent and sadly demented classes as a matter of public necessity, and the increase of incurables.

But there is another point that is not to be lost sight of, and that is the increased comfort rendered possible by a better knowledge of the disease and more thorough organization. No one can compare the institutions of twenty-five years ago with the present and not be struck with this.

Five years ago I recommended the construction of a few rooms for each sex, for the care of the sick, and especially for those who are so ill that it becomes desirable to have their friends with them, or for those requiring a special nurse. There are instances constantly occurring where a feeble, sick patient is injured, and recovery retarded, by being kept in the general ward, and where an unnecessary restraint has to be exercised over all others in the ward for the welfare of the one sick patient. The presence of relatives and friends of sick in the general ward for days, and even weeks, is not desirable. The friends, under such circumstances, wish to come and go, and should be able to do so without disturbing the general operations of the institution or taking an attendant from duty to take them in and out several times a day. The plan formerly submitted, and which, with a single modification, I again present, will permit such sick

to be visited, partly or entirely, by friends who can have ingress and egress to the special hospital rooms of the three stories from one point, and be in constant communication with the supervisors of the respective departments, and in ready, easy and proper relation with the medical officers. This subject was brought to the attention of the Board of State Charities, in 1868, and they made the following recommendation :

“There should be erected two small wards, one for each sex, for the treatment of the sick and feeble, that their friends may be able to visit them and remain near them without disturbing a large number in a general ward. This improvement is demanded not only by humanity but by decency, especially in the case of female patients, who are frequently admitted to the asylum in a condition which justifies and demands seclusion and the most tender care.”

Your attention has been frequently called to the limited capacity of the day rooms for the more disturbed classes. I have also called the attention of the Governor of the State, and the State Comptroller and such of the Board of State Charities as have visited and inspected the asylum, to this point. These rooms are not only too small but they are not well located and are too dark.

They have severally approved of proposed changes, which have been from time to time postponed for more pressing improvements and repairs.

In accordance with the direction of your board, I submit a plan of the changes and improvements necessary to make the institution, as far as possible, meet the necessities of those who are obliged to be transferred to its care. In a rigorous climate, such as we are under, patients are necessarily in the house a

large part of the year, especially in the winter months. Light and air, so essential to persons in health, are doubly necessary for the sick. The wards in asylums should be light and cheerful, both for the health and more speedy restoration of the patients, and for their comfort and happiness under a compulsory confinement sufficiently irksome under the best conditions possible.

We have realized the necessity of isolated rooms the past year in the appearance of small-pox in the institution. Four cases occurred, all in the men's department and each in a different ward. The first case was May 24, two more June 19, and the last one June 27. The first case was a demented man who was admitted February 28, 1872. He had not been out of the institution after admission, and as far as we have been able to ascertain, had had no intercourse with outside people.

This was a case of confluent small-pox, and the patient died on the tenth day. One of the other cases was confluent and the other two were severe cases. We procured two hospital tents and located them some distance from the building on the farm, and thus completely isolated them. We also assigned attendants to take care of them who had had the disease. All the patients, attendants and employes were vaccinated with fresh bovine virus. A number were vaccinated the second and some the third and fourth time before the vaccination proved successful.

Attendants G. B. Griffiths and D. K. Davis took care of the four cases, and were necessarily isolated from all society except that of the patient from the 24th of May to the 15th of July. They deserve commendation for the cheerful and faithful manner in which they accepted and discharged a most disagreeable duty.

TABLE

Showing the General Statistics of the Asylum from its opening, January 16, 1843, to December 1, 1872.

Total number of admissions.....	10,621
Total number of discharges.....	10,086
Total number of discharged recovered	4,085
Total number discharged improved.....	1,637
Total number discharged unimproved.....	2,935
Total died	1,386
Not insane.....	143

GENERAL

TOTAL STATEMENT

of the operation of the per centage of the New York State Lunatic Asylum for the thirty years the average ending 30th November, 1872.

YEARS.							Discharged, not insane.	Died.
1843.....	276	80	276	53	11	6	....	7
1844.....	275	211	471	132	47	16	....	61
1845.....	298	268	553	135	78	34	....	21
1846.....	337	248	622	133	60	33	....	22
1847.....	423	330	802	187	70	25	....	48
1848.....	405	362	877	174	84	39	....	38
1849.....	362	406	857	100	66	70	....	60
1850.....	367	337	816	171	57	108	....	51
1851.....	366	360	795	58	28	57	....	24
1852.....	390	400	825	150	53	152	....	39
1853.....	424	408	849	169	66	129	....	39
1854.....	390	336	836	164	42	115	....	65
1855.....	276	278	725	128	15	79	16	32
1856.....	242	236	697	100	33	65	8	30
1857.....	235	245	606	95	25	68	10	32
1858.....	333	282	784	114	33	99	5	31
1859.....	312	295	814	114	57	86	3	35
1860.....	337	339	721	111	56	133	3	42
1861.....	295	280	812	83	58	104	4	31
1862.....	287	305	819	106	51	115	3	30
1863.....	287	267	801	80	33	101	6	42
1864.....	319	289	858	109	11	84	4	48
1865.....	356	305	920	118	35	91	9	57
1866.....	333	362	1,003	164	39	106	9	44
1867.....	401	439	1,042	159	58	164	7	51
1868.....	332	415	985	157	35	105	10	53
1869.....	463	430	1,083	156	35	117	8	64
1870.....	481	441	1,084	153	72	134	7	75
1871.....	516	576	1,159	168	35	245	17	61
1872.....	399	447	982	142	73	156	14	63

1, and

Percentage.
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3.69
1.80
3.57
5.59

T A B L E

Showing the per centage of deaths on the whole number treated, and on the average population, for thirty years.

YEARS.	Deaths.	Whole No. treated.	Per centage.	Average population.	Per centage.
1843	7	267	2.53	109	6.44
1844	16	471	3.39	236	6.78
1845	21	553	3.79	265	7.92
1846	22	622	3.53	283	7.77
1847	48	803	5.98	415	11.56
1848	86	877	9.80	474	18.14
1849	69	857	8.05	454	15.19
1850	51	815	6.25	433	11.77
1851	48	795	6.03	440	10.91
1852	39	825	4.72	441	8.84
1853	39	849	4.59	423	9.22
1854	65	836	4.75	444	14.63
1855	32	725	4.41	467	6.85
1856	30	697	4.30	454	6.61
1857	32	696	4.59	463	6.88
1858	31	784	3.95	489	6.33
1859	35	814	4.30	509	6.87
1860	42	856	4.90	516	8.13
1861	31	812	3.82	519	5.97
1862	30	819	3.66	526	5.70
1863	42	801	5.24	528	7.95
1864	48	853	5.02	560	8.57
1865	57	920	6.19	591	8.79
1866	44	1,003	4.38	643	6.84
1867	51	1,042	4.89	610	8.36
1868	58	985	5.88	589	9.84
1869	64	1,033	6.29	600	10.66
1870	75	1,084	6.91	629	12.08
1871	61	1,159	5.35	605	10.08
1872	62	982	6.81	588	10.54

TABLE

Showing the ages of those admitted, and those discharged recovered, during the year ending November 30, 1872.

YEARS.	ADMITTED.			DISCHARGED RECOVERED.		
	Men.	Women.	Total.	Men.	Women.	Total.
From 14 to 20....	9	11	20	8	3	11
From 20 to 30....	74	40	114	26	21	47
From 30 to 40....	49	58	107	12	17	29
From 40 to 50....	42	47	89	22	15	37
From 50 to 60....	20	19	29	8	6	14
From 60 to 70....	11	16	37	2	2	4
From 70 to 80....	2	.....	2	.....	.....	.....
From 80 to 90....	1	.....	1	.....	.....	.....
Total.	208	191	399	78	64	142

EDUCATION.

Of 399 admissions, 3 had received a collegiate, 26 an academic, and 355 a common school education; 8 could read and write, 5 could read only, and 5 had received no education.

CIVIL CONDITION.

Of the 399 admissions, 106 men and 114 women were married, 95 men and 57 women were single, 8 men and 18 women were widowed, and 1 woman was divorced.

TABLE

Of probable exciting causes in those admitted during the year.

	Men.	Women.	Total.
General ill health	32	67	99
Ill health from overwork, grief, anxiety, fatigue and loss of sleep.....	10	15	25
Ill health following fevers	1	....	1
Ill health from uterine diseases.....	....	2	2
Ill health from prolonged lactation .....	....	2	2
Puerperal .....	....	18	18
Change of life .....	....	2	2
Intemperance.....	33	2	35
Masturbation	33	1	34
Phthisis	11	15	26
Meningitis	8	8	6
Apoplexy .....	....	1	1
Scrofula.....	2	3	5
Sun stroke	2	...	2
Epilepsy	12	1	13
Rheumatism	2	3	5
Opium habit.....	2	3	5
Peritonitis.....	....	1	1
Injury to head.....	4	4	8
Bright's disease	1	....	1
Jaundice	2	....	2
Menstrual irregularities.....	....	8	8
Pneumonia	2	2	4
Paralysis	2	....	2
Dyspepsia	1	....	1
Syphilis	1	....	1
Abortion .....	....	1	1
Measles .....	....	1	1
Paresis	17	2	19
Not insane	14	3	17
No history of causation	22	30	52
Total	209	190	399

TABLE

Showing the form of mental disorder in three hundred and ninety-nine cases.

FORM.	Men.	Women.	Total.
Melancholia	52	60	112
Acute mania.....	40	45	85
Dementia	36	30	66
Chronic mania.....	18	23	41
Sub-acute mania	18	15	33
Periodic mania	1	6	7
Paroxysmal mania	1	5	6
Epilepsy	12	1	13
Paresis	17	2	19
Not insane	14	3	17
Total	209	190	399

TABLE

Showing the Statistics of hereditary transmission in three hundred and thirty-nine cases.

WHERE FOUND.	Men.	Women.	Total.
Paternal branch	15	18	33
Maternal branch.....	15	18	33
Maternal and paternal branches.....	.....	5	5
Insane relatives.....	9	8	17
Total	39	49	88

TABLE

Showing the duration of insanity previous to admission, in three hundred and ninety-nine cases.

	Men.	Women.	Total.
One week.....	8	7	15
Two weeks.....	11	18	29
Three weeks.....	8	6	14
One month.....	12	13	25
Two months.....	22	28	50
Three months.....	9	10	19
Four months.....	11	12	23
Five months.....	6	5	11
Six months.....	17	10	27
Seven months.....	2	5	7
Eight months.....	5	5	10
Nine months.....	2	1	3
Ten months.....	....	4	4
Eleven months.....	....	2	2
Twelve months.....	18	15	33
Fourteen months.....	2	2	4
Sixteen months.....	4	1	5
Eighteen months.....	5	3	8
Two years.....	17	13	30
Three years.....	6	3	9
Four years.....	5	2	7
Five years.....	2	5	7
Six years.....	1	3	4
Seven years.....	3	1	4
Eight years.....	....	1	1
Nine years.....	1	....	1
Ten years.....	1	1	2
Twelve years.....	3	2	5
Fifteen years.....	1	....	1
Sixteen years.....	2	....	2
Seventeen years.....	....	1	1
Eighteen years.....	....	1	1
Twenty years.....	1	...	1
Unascertained.....	9	8	17
Not insane.....	14	3	17
	208	191	399

TABLE

Showing the duration of insanity previous to admission, and the period under treatment, in one hundred and forty-two cases discharged recovered.

	BEFORE ADMISSION.			UNDER TREATMENT.		
	Men.	Women.	Total.	Men.	Women.	Total.
One week	5	8	13	....	.....	....
Two weeks	9	6	15	....	.....	....
Three weeks.....	3	3	6	....	.....	....
One month	3	4	7	....	.....	....
Two months.....	15	18	33	8	3	6
Three months.....	4	5	9	9	11	20
Four months	3	8	6	11	10	21
Five months.....	2	2	4	11	5	16
Six months	9	2	11	7	6	13
Seven months.....	1	.....	1	5	5	10
Eight months.....	2	1	3	1	5	6
Nine months.....	....	.....	....	5	3	8
Ten months.....	....	1	1	2	1	3
Eleven months.....	1	.....	1	1	2	3
Twelve months	4	3	7	4	2	6
Thirteen months .....	....	.....	....	2	3	5
Fourteen months.....	....	.....	....	2	3	5
Fifteen months	1	.....	1	1	.....	1
Sixteen months .....	....	.....	....	1	1	2
Seventeen months.....	....	.....	....	1	.....	1
Eighteen months.....	1	1	2	2	2	4
Twenty months.....	....	1	1	3	1	4
Twenty-two months.....	....	.....	....	....	1	1
Two years	7	1	8	3	.....	3
Thirty months .....	....	.....	....	1	.....	1
Three years	2	.....	2	2	.....	2
Four years.....	....	.....	....	1	.....	1
Five years.....	1	.....	1	....	.....	....
Six years .....	....	1	1	....	.....	....
Seven years.....	1	.....	1	....	.....	....
Ten years.....	1	.....	1	....	.....	....
Unascertained	8	4	7	....	.....	....
Total.....	78	64	142	78	64	142

TABLE

Showing the Nativity of those admitted.

New York.....	287
Ireland	48
Germany	17
England	11
Connecticut.....	8
Canada	5

Vermont.....	8
Massachusetts.....	8
Wales	2
Switzerland	2
Austria	2
Bavaria	2
Rhode Island.....	2
France	1
Scotland	1
Poland	1
New Hampshire.....	1
South Carolina.....	1
Wisconsin	1
Maine	1
Total	<u>399</u>

T A B L E

Showing Occupations of those admitted.

Housekeepers	153
Farmers	84
Laborers.....	81
Workers in wood.....	14
No occupation	13
Workers in leather	18
Housework	12
Merchants	10
Teachers.....	7
Workers in iron.....	5
Students	5
Seamstress	5
Insurance and express agents.....	5
Printers	3
Clerks	3
Painters	3
Millers.....	2
Cigar makers.....	2
Peddlers	2
Hatters	2
Book-keepers	2
Cooks	2
Factory operative	1
Dentist	1
Glass manufacturer.....	1
Confectioner	1
Spinner.....	1
Clergyman	1

Weighmaster.....	1
Barber	1
Tailor	1
Physician	1
Draughtsman ..	1
Hotel-keeper	1
Lawyer	1
Policeman	1
Baker	1
Builder ..	1
Sailor	1
Telegraph operator.....	1
Druggist	1
Detective	1
Nickel plater.....	1
Total	399

TABLE

Showing number of cases of General Paresis admitted and died since 1849.

YEARS.	ADMITTED.			DIED.		
	Men.	Women.	Total.	Men.	Women.	Total.
1849 .....	....	....	....	4	....	4
1850	1	....	1	2	....	2
1851	1	....	1	2	....	2
1852	1	1	2	....	1	1
1853	6	1	7	4	1	5
1854	4	1	5	4	....	4
1855	7	....	7	4	....	4
1856	2	....	2	3	....	3
1857	9	....	9	3	....	3
1858	4	1	5	4	....	4
1859	5	1	6	3	2	5
1860	9	....	9	9	....	9
1861	8	1	9	10	....	10
1862	7	....	7	4	....	4
1863	11	....	11	9	1	10
1864	15	2	17	12	....	12
1865	22	....	22	12	2	14
1866	10	8	18	9	....	9
1867	13	....	13	8	....	8
1868	22	....	22	9	1	10
1869	29	....	29	15	....	15
1870	17	2	19	18	1	19
1871	27	4	31	17	1	18
1872	17	2	19	17	2	19
Total	247	19	256	182	12	194

There were, during the year, forty deaths among the men and nineteen autopsies were held, which we give with a brief history of each case. These, by multiplying the data, will aid in establishing pathological facts regarding various forms of disease.

A man, age forty-seven, of good habits, had been insane for two years, though friends had noticed marked evidences of insanity for only some four months. He then developed the delusion that he was a telegraph operator, and occupied much of his time drumming on the table as if sending messages; also asserted that food was poisoned, and would not eat unless others first tasted it. He then became violent toward his brother; attacked and threatened to kill him. When admitted, tongue and hands were tremulous and gait unsteady; was exalted and dictatorial; refused to go to dining-room, but ate heartily. After two months he failed in mental and physical strength; undressed himself upon the ward; was noisy at night, and filthy in his habits. He finally refused food and rapidly failed. An œdematous condition of the hand and arm occurred, which was followed by an effusion of sanguinolent serum under the cuticle. He died after nine months' residence in the asylum.

Autopsy.—Rigor well marked; left hand and arm œdematous and discolored.

Head.—Scalp and skull cap unusually thick; arachnoid raised by serous effusion, in some places one-half inch. Marked depression of convolutions in upper part of left hemisphere. Lateral ventricles empty. Weight of brain, cerebellum and medulla, fifty-two ounces.

Thorax.—Firm old pleuritic adhesions at apex of right lung, which was studded with cretaceous deposits; remaining lung

substance normal. Heart large and fatty; valves and orifices normal. Firm white clot in each ventricle extending into connecting vessels.

Abdomen.—Liver and kidneys normal. Spleen large, with much thickening of capsule; marked deflection of transverse colon. Sigmoid flexure extended upward eight inches above symphysis pubis. Left arm, arteries and veins examined. Extreme vascularity of sheath of radial artery.

A man aged twenty-seven, laborer, of good habits and industrious. A year before admission was said to have been struck. He apparently recovered, but some six weeks ago became sleepless, restless, inclined to go from home without purpose or design; went to the barn as many as twenty times a day and harnessed and unharnessed his horse. Soon his speech became thick as that of one intoxicated, and thus increased till he could not be understood. When he came to the asylum he was irritable and willful, tongue was tremulous, pupils unequal in size. For some months he continued in good flesh and took food regularly, but was very weak-minded. He had at irregular intervals frequent paretic seizures, of an epileptiform character, from which he gradually failed, though he was able to move about the ward in a very imperfect and shuffling way. He had the complacent countenance, the tremulousness and loss of co-ordinate power so characteristic of paresis, but was entirely aphasic. After thirteen months he had a paralytic attack affecting the entire right side, and died on the second day.

Autopsy.—*Head.*—Skull-cap thick, dura mater adherent to calvarium and thickened. The arachnoid was raised over almost entire surface of convolutions, and on being punctured some six ounces of serum escaped. The anterior convolutions

were hardened but the posterior were softened in patches. Near the fissure of Rolando there was a cyst, one-half inch in length and one-quarter in diameter, filled with clear fluid.

Another cyst was found near the fissure of sylvius, which had destroyed the third left frontal convolution and Island of Reil. There was white fatty degeneration in the meningeal wall of cyst, and complete occlusion of the left middle cerebral artery, extending more than an inch from the bifurcation of the vessel. The right middle cerebral artery was atheromatous, and distended by a firm plug about half an inch from its origin. There were patches of sclerosis in the pons varolii and medulla.

A man, age forty-eight, of good habits, and though of feeble constitution was in ordinary health till a year before admission; his vision then became disturbed; at times saw objects double, and soon after had an attack of paralysis, affecting his left side. From this he apparently recovered, and for some ten months continued in usual health. At this time his friends noticed a change in him from some peculiarities of conduct, and from his making unusual purchases upon credit. He grew gradually worse, and the day before he was brought to the asylum was noisy, maniacal and talkative; went around the village urging people to attend a large religious meeting he said he was going to hold in the evening; at times asserted he had millions of dollars, and again lamented his poverty; he was up all night and was restless and disturbed; early in the morning he had a slight paralytic attack; when admitted the tongue and fingers were tremulous; there was marked hesitancy of speech and unsteadiness of gait. He remained in the asylum some five months, and during this time had occasional slight seizures, followed by

increased impairment of speech, muscular tremors, short periods of excitement, and gradual mental enfeeblement. During a remission in the course of the disease, he was removed by his friends, and kept at home about five months. While there, he had numerous slight convulsions, which he attributed to the medicine given him, and almost daily periods of noise and excitement, in which he was threatening in speech and dangerous. Notwithstanding this condition, he requested to be brought back to the asylum. At this time, the symptoms of the disease previously given were more marked, and the pupils of the eyes were much contracted. The convulsions continued, and the patient became very emotional and depressed, cried much of the time, asserted he was going to die, that he had been deserted by his wife; that she had poisoned him with strychnine and quicksilver, and was coming to hang him. After a few months he developed delusions of great wealth, that Queen Victoria was his sister; that he owned the Eastern States and the diamond mines of Brazil, and that his wife commanded the armies of Europe. He gradually grew more feeble, and was noisy and incoherent. A year from time of admission his vision was affected, and he had occasionally short periods of blindness, and after two months he became totally blind. The paretic attacks were severe, and resulted in complete paralysis of the legs. The patient from this time retained his bed, was noisy, destructive, maniacal and filthy. He continued in this condition for some ten months, when he failed and died, two years after his second admission.

Autopsy.—Head.—Scull-cap one-half inch in thickness, hard and without diploe. Dura mater was strongly adherent to calvarium, and on being opened ten and a half ounces of serum escaped.

Sub-arachnoid effusion extensive, and membrane at vertex covered by deposit of lymph. Anterior lobes small and flattened, and convolutions atrophied, especially in right frontal region. There were several small clots over anterior part of right hemisphere. Whole weight of brain, cerebellum and pons, thirty-five and one-half ounces. Gray matter, thin, and whole substance fine. The left hemisphere wider than the right, by a half inch, measured through the corpora striata. The lateral ventricles were filled with serum, and the choroid plexus studded with cysts, like small pearls, arranged in pairs. The optic nerves were atrophied.

Thorax.—Lungs.—Pleurae on both sides firmly adherent to thoracic walls. Of the right lung only a carnified mass remained, which was attached to the vessels. The lower lobe of the left lung was consolidated and contained a small abscess.

Heart normal. Liver friable and fatty. Capsule easily detached. Kidneys normal. Adipose tissue of omentum had been taken up and the mesenteric glands were enlarged and filled with tuberculous matter.

A man, aged 64, laborer, had shown evidence of insanity for some two years, though he kept at work till about six weeks before admission. From that time he became feeble minded and was childish and foolish in action. When admitted the paresis was fully marked, in the tremulousness of tongue and hands, stammering speech, complacent expression and unsteadiness of gait. He was too incoherent to be understood, and was noisy and restless. He rapidly grew more feeble, lost control of the movements of his bowels and bladder. A haematoma of the ear was developed. He continued in this condition without special change some fifteen months. There then occurred a breaking down of tissue,

which resulted in extensive ulcers of the legs. He had also a large abscess in the frontal region, extending from root of nose to the ear. He ran down, in spite of nourishing food and stimulants, which were administered. He kept up and was about the ward till his death, which occurred suddenly from apoplexy.

Autopsy.—There was a depressed cicatrix along middle line of frontal bone, at the upper part of which was a deep circular ulcer one-half inch in diameter. A number of ulcerations at lower part of left thigh, leg and foot; the ulcers were deep, with clean cut edges. There was an abrasion of skin and a slough at point of left elbow, also large eschars on back, and thickening and contraction of both ears, result of old haematoma.

Head.—Skull-cap and dura mater normal. Pacchionian bodies large and numerous, arachnoid opaque and raised by a large amount of serum. General atrophy of the convolutions especially marked over anterior portions of hemispheres.

Two ounces of serum there found in lateral ventricles, and there was a general thinning of the cortical substance. Weight of brain, cerebellum and pons forty-four ounces. Membranes of spinal cord distended with serum.

Thorax.—Lungs much pigmented; old pleuritic adhesions on right side. Right lung crepitates throughout, lower lobe of left lung consolidated—indurated cicatrices at apex.

Heart.—Large and loaded with fat, one ounce of serum in pericardium. Mitral and aortic orifices half surrounded by a thick ring of ossific deposit. Left ventricle contracted. Firm clot eighteen inches long in aorta.

Abdomen.—Caput coli was found attached by firm adhesions to under border of liver, and the appendix vermiformis

unusually long, lying transversely across the abdomen. Liver very dark colored and friable. Kidneys congested.

Man, age thirty-two, of good habits, had been insane for about three weeks. At first he acted as though he had been drinking, but soon became noisy and maniacal, and, when brought to the asylum, was restrained by wristlets and tied up in a sack. His tongue was dry, and he was hoarse from hollowing and talking. For some two months he remained in an acutely maniacal state, when he slowly improved, and, after some six months' treatment, was in such a comfortable condition that he was removed by his friends. He continued at his work for about six months, when he had a paralytic attack, which was followed by hesitancy of speech and the other most marked physical symptoms of paresis. In this state he was soon after returned to the asylum. He was feeble-minded, but did not manifest any exalted delusions. He had frequent epileptiform seizures, with increasing paralysis; lost control of the movements of his bowels, and finally became helpless. He died some two months after his second admission.

Autopsy.—Head.—Dura mater adherent to arachnoid, which was raised by large effusion of serum. Two patches of lymph of an inch in diameter, were found over each sylvian fissure. There was depression of convolution, and atrophy over whole surface of cerebrum; lateral ventricles were filled with serum, and the choroid plexus was cystic; brain substance firm; weight of cerebrum cerebellum and pons, forty-four and one-half ounces.

Thorax.—There were several isolated points of congestion and a small abscess in lower part of right lung. Heart normal.

Abdomen.—Liver somewhat fatty; right kidney lobulated; pelvis distended with a limpid and inodorous fluid; ureter

large, and ended in a shut sac near the bladder, with which there was no communication; tissue of kidney atrophied; left kidney larger than right, and ureter had a large opening into bladder.

Man, age thirty-eight, had been accustomed to using liquor freely for some years. Seven months before admission, friends noticed a change in him; he seemed feeble-minded, could not transact business as usual; made mistakes in counting change while making purchases. Soon after he became incoherent; lost power of writing; had paralysis of throat, and marked hesitancy of speech. These, with other symptoms of paresis, existed to a marked degree when he was brought to the asylum. He had exalted delusions regarding his position and wealth, and complained of pain in his head, and of flashes of light before his eyes. He failed constantly, and became more paralyzed. During the whole course of the disease he retained his delusions, and had constant sexual excitement from disease of the cord. He died after nine months.

Autopsy.—Head.—Scalp and calvarium thick; firm adhesions between dura mater and arachnoid, which was opaque over anterior portion of both hemispheres. Small amount of serous fluid effused. Lateral ventricles filled with serum, gray matter, thin; small tumor in choroid plexus. Weight of cerebrum, cerebellum and pons, forty-eight and one-quarter ounces.

Thorax.—Right side, firm plueritic adhesions. In lower lobe of right lung there was an abscess an inch in diameter. Tissue adjacent was cicatrized. Left lung, tissue hepatized. There were two abscesses found, one in the upper and the other in the lower part of lower lobe, and also an old cicatrix existed at vertex of upper lobe.

Liver.—Adherent to stomach by fibrous bands. Mesenteric glands enlarged, and filled with tuberculous matter. They ranged in size from a small pea to those an inch in diameter. The intestines were adherent to the abdominal walls in many places, especially about pelvic region.

Man, age seventy-four, of intemperate habits; had been in the asylum twice before, and was last discharged, recovered, about five years ago. He subsequently returned to his intemperate habits, and had chronic rheumatism and gravel. Three months before admission he became sleepless, restless, lost appetite and flesh; was gloomy and depressed; asserted he was going to hell, and that ruin was impending. "To get on faster and to get out of trouble," he cut his throat, and, on the third day thereafter, was sent to the asylum. He continued melancholic, restless and silent, lost in strength and became filthy in his habits, and, though given concentrated food and stimulants, failed slowly and died after a month, suddenly, of apoplexy.

Autopsy.—Head.—Skull-cap thick and dura mater firmly adherent. A clot one inch by one-half was found at vertex; also a large clot in longitudinal sinus. There was considerable serous effusion beneath arachnoid, over superior surface of right hemisphere. Convulsions were atrophied at several points. Brain tissue firm; one-half ounce of serum in lateral ventricles. Weight of cerebrum, cerebellum and pons, was forty-nine and one-quarter ounces.

Thorax.—Firm adhesions existed between pleural surfaces of each lung; the right was studded with miliary tubercles, and the left contained numerous small abscesses. Heart, hypertrophied.

Liver.—Capsule easily detached; tissue friable and fatty. Colon contracted, and deflected downward to within two inches of symphysis pubis.

Man, age sixty-three, good habits, strong hereditary tendency to insanity. Patient had been a healthy, hard-working man; ten years ago he had an attack of acute mania, but recovered in a short time, and remained well until time of present attack, some two months before admission. Then, having been reduced by hard labor and overcome by heat, he became sleepless, talkative and excitable, but continued his work. He gradually grew worse, got up and went to work at night, and went to the barn with a lighted candle; talked incessantly; was irritable, almost constantly in motion, gesticulating wildly; repeating some stories about himself and family. When admitted he had lost flesh, had hectic flush, twitching of muscles of face, and eyes were injected. Said he knew he was not right and came willingly. The third day after, he died suddenly, apoplectic.

Autopsy.—*Head.*—Scalp thin; ecchymosis over right temporal muscle. Dura mater adherent to calvarium. A large clot of blood was found, covering almost entirely the posterior lobes of the cerebrum, extending anteriorly an inch beyond the fissure of Rolando. The arachnoid was deeply congested, and the vessels engorged; convolutions were stained with blood and softened in patches. Several bony plates were found attached to inner surface of dura mater, situated over left anterior lobe. They varied in size from a small speck to a piece three-quarters by one-half inch.

Thorax.—Old pleuritic adhesions over surface of both lungs. In anterior aspect of upper lobe of right lung, there was an abscess about three by one and one-half inches, filled with

thick, light colored pus. Tubercular and pigmentary deposits were found in lower lobe of same lung. Left lung normal.

Heart.—Small, surface shriveled, fibrinous deposits on anterior face, slight pericardial effusion, valves normal, abdomen. Liver enlarged, and extended downward two inches below normal line. Hæmorrhayis spots were found in peritoneum, varying in size from a small point to space three inches in diameter.

Man, age eighty-three, of good habits, was a hard-working, industrious and ordinarily healthy man. He had an ulcer on right leg, which discharged for fifty years. Some five months before admission he caught cold, and from this time a change was noticed in him. He became suspicious of his family and friends, said they were all conspirators, and he would not live under their roof, and tried to get away. He was cross and irritable, became profane, obscene, noisy and maniacal, and developed the delusion that he was going to make a machine with which he could make the money to pay the national debt. He slept little, but ate fairly. In the asylum he continued as described, repeated the delusions given; was abusive of physicians and attendants, and at times had paroxysms of increased disturbance and violence. After some fifteen months, and without any apparent change in his physical or mental state, he suddenly passed into an unconscious condition, from which he partially rallied after a few hours. In a second attack of like character, he died in the evening.

Autopsy.—Head.—Calvarim hard and without diploe; dura mater firmly adherent to parietal and frontal bones; arachnoid of an ochre yellow color, over both frontal lobes.

Slight serous sub-arachnoid effusion; cerebral sinuses filled with fluid blood. Atheromatous degeneracy of ophthalmic arteries, also of several parts of circle of Willis. The convolutions were of a yellow or rusty brown color, particularly in anterior lobes of cerebrum, and were softened. Ventricles were distended with limpid serum. The corpus callosum was softened and easily torn. The exterior portions of cerebellum was softened, and section of the medulla showed sclerosed portions.

Man, age 27, of good habits, had four years ago an attack of inflammation of the lungs, and since that time has had cough. About a year ago he had hæmorrhage from the lungs. For two months he had given evidences of insanity, left his work, wandered about the streets, drank liquor to excess, neglected to provide for and abused his mother. He soon became noisy and violent, had exalted delusions of wealth, hired a store at a high rent and stocked it with sewing machines. When asked for pay for them he drew a knife and threatened to kill the person. He was arrested by the police and sent to the asylum. Here phthisis was diagnosticated. He was noisy, mischievous and maniacal, asserted his delusions of wealth, and made numerous efforts to escape. This state of excitement continued for a year, after which the patient became more feeble minded and filthy in his habits. He emaciated, grew more feeble in health, and died with colliquative diarrhoea some sixteen months after admission.

Autopsy.—Head.—Body much emaciated. Adhesion of meninges at vertex with considerable exudation of lymph and serum. Pacchionian glands very large and numerous. A thin clot of blood was found between the skull-cap and dura mater in right parietal region, and vessels of meninges were

engorged with blood. Corpora quadrigemina, pons varolii and medulla much softened. Weight of brain, fifty-five ounces, of cerebrum alone forty-eight ounces.

Thorax.—Firm pleuritic adhesions on both sides. Both lungs studded with tubercles and contained many small abscesses which were empty.

Abdomen.—Liver hard and fatty. Mesenteric glands enlarged and filled with tuberculous matter. Kidneys normal.

A man, age fifty-two, a moderate drinker. Three years ago was injured by being thrown from a buggy and striking upon his head, and from that time manifested some changes in mental characteristics. He continued work at his trade for two years, though he constantly grew more feeble-minded, lost his memory, had delusions of the possession of property; claimed a building he once owned and attempted to eject the occupants. When admitted was quiet, but childish; unable to reply to questions—repeated same thing over and over; ate and slept well and had not lost flesh. Although placed on use of tonics and concentrated nourishment, he failed steadily; in a few days took his bed, and died in six weeks.

Autopsy.—Head.—Firm adhesions between dura mater and skull-cap; also, between dura mater and arachnoid over both hemispheres; considerable serum effused beneath arachnoid. Lateral ventricles filled with serum; brain tissue soft. Weight of cerebrum, cerebellum and pons, forty-four and three-fourths ounces.

Thorax.—Pleura adherent. Both lungs contained numerous small abscesses, and lower portions only crepitant.

Man, age fifty-nine, of good habits, had for some years been slowly losing the property which he had accumulated in early life. This worried him much, and he worked hard to repair

his losses, but without avail. Some two years before admission first manifested insanity; became irritable and fault-finding; said his friends intended to injure him, and that they were responsible for his losses. He soon began to wander from home, to denude person, became feeble-minded and careless in his habits. In the asylum he gradually failed in mental and physical strength; was talkative, incoherent, restless, became helpless, and demanded the care of a child. He died after four months.

Autopsy.—Head.—Skull-cap thick, and adherent to dura mater by firm, fibrous bands. Almost entire surface of left hemisphere was covered by a thin clot. Eight ounces of serum were effused into cranial cavity. There were three cicatrices in the left corpus striatum, and two in the right. Lateral ventricles filled with fluid. Vessels at base of brain atheromatous and brittle.

Thorax.—Strong adhesions existed between pleural surfaces in left side, and large portions of the lung were hepatized. Right lung was destroyed; a mass about the size of a fist remained attached to large vessels, and this contained an abscess.

Head.—Pericardial sack contained two ounces of serum. Muscular walls thin, soft and easily broken; liver and kidneys normal.

Man, age thirty. Served with distinction through the recent war; during the time was sick, and said to have had camp fever. Subsequently he had chronic diarrhoea, and returned home in impaired health, but entered upon business, which he conducted with energy and vigor beyond his strength. After some two years he had a convulsion, in which there was complete unconsciousness, skin cold and bathed in perspiration,

pulse feeble and slow. This was followed by muscular tremors of face and hands, and by temporary loss of speech. From this time his health failed, and he had periods of great nervousness and restlessness; at times was depressed, and again irritable and suspicious, and steadily lost in mental and bodily vigor. Afterward he had occasional slight attacks of loss of speech, and at other times would be interrupted in the midst of a sentence for an appreciable length of time, but never lost consciousness. His appetite was variable and he had attacks of nausea with headache and sleeplessness. The aphasic condition became more pronounced, and he had vertigo, loss of memory, and was at times extremely irritable. There was also general emaciation and unnatural muscular activity, with loss of appreciation of his business affairs. Eight months before his admission had several attacks described as fainting spells, after which his mental powers failed more rapidly. He had no pain, cough, or expectoration, though his general condition indicated tubercular disease of the lungs. His speech became so imperfect that at times it was difficult to understand him, and though he walked about and used his hands and arms freely, he wrote illegibly and incoherently, but seemed to have an appreciation of this, as he frequently rewrote several times. Somewhat later he had paralytic attacks, with convulsions, followed by more or less maniacal manifestations.

Three months before admission, he became almost completely aphasic, was restless, sleepless and at times turbulent. Two weeks before admission he had a severe attack of convulsion, after which he manifested such delusions toward his family and those about him, that it was necessary to bring him to the asylum. For a few weeks he seemed quite comfortable, walked and rode out, ate and slept well. He was unable to speak, but

indicated his wants by signs and occasionally by an imperfectly uttered word. A few days afterward he had convulsions, followed by paralysis, after which he gradually failed, and died in eleven weeks.

Autopsy. — *Head.* — Skull-cap thick. Brain small and shrunken; longitudinal sinus contained a firm, white clot at vertex. Large, sub-arachnoid, sinus effusion. Left hemisphere larger than right; brain substance firm. Weight of encephalon forty-two and one-quarter ounces.

Throat. — Universal and firm adhesion of right lung to thoracic walls. Abscess extending from apex to base, and capable of holding more than a quart of fluid.

Lung tissue studded with tuberculous deposits. Left lung adherent, an indurated cicatrix at apex, and an abscess as large as a hen's egg in middle portion of lung.

Heart small, left ventricle contracted and empty, right ventricle hypertrophied, a small patch of atheroma in aorta. Liver large and fatty, deflection of transverse colon to symphysis pubis, stomach softened and easily lacerated.

Man, age forty, good habits, and for a year before admission had been failing in health. Some three months before he began to lie in bed, without apparent cause, made no complaint of pain or illness, and when remonstrated with by his wife attacked her with a hammer. He wandered off in the woods and was with difficulty returned; was then moody, would not answer any questions addressed to him and refused food; circulation sluggish, face and hands deeply congested. After admission he continued gloomy and despondent, moaned and groaned, took food sparingly. After some six months he refused all food and was fed by stomach tube. He, however, soon took nourishment voluntarily, was noisy, profane

and talkative, offered large sums of money to be cured. When he had been some ten months in the asylum he had an attack of phlegmonous erysipelas, involving the whole of the right leg, under which he gradually failed and died.

Autopsy.—Head.—Strong adhesions between skull-cap and dura mater; longitudinal sinus filled with dark clot; considerable subarachnoid serous effusion; opacities in arachnoid at several points. Convolutions atrophied over parietal portions of both hemispheres. Weight of encephalon, fifty and three-fourth ounces.

Man, aged twenty-one, good habits; father, grandfather and uncle have been insane. Was a strong, large framed and vigorous man, and had always been healthy. Ten months before admission, he received an injury to the head from a lever. The blow stunned him, and “made a strange feeling all over him.” He complained, immediately after this, of a pain in his head, at times sharp and darting, and again heavy and constant. He, however, continued to work and manifested no mental change till some five months ago. He lost flesh and sleep; complained of chilliness; was moody; talked to himself; laughed in a silly, foolish way; memory and attention failed him; would forget what he was doing when he attempted anything. He gradually became restless and sleepless; was out of bed at night and tried to get out of doors. Four weeks ago he was very drowsy and slept much; and during last two weeks was quite incoherent; neglected care of person; when out in the rain would take off his coat and carry an umbrella without raising it. Recently, he has complained of dimness of vision; could not see across the room; skin sallow and greasy; gums pale; pupils large; eyes injected; lips deeply colored.

After admission he was gloomy and depressed; asserted he could not live, and would die in a day or two; mind was feeble and inactive, and he would only reply to questions on being urged. After two weeks, he was noisy, maniacal and destructive; opposed care; endeavored to get away. He refused all food, and it was administered by stomach tube. The patient lost in flesh and strength; tore up his bedding; suddenly struck at persons without warning; was visited by his brother, who remained with him a few days. At first took food from him, then suddenly seized the plate, threw it at him and pursued him around the room with the knife with which he was eating. He wasted rapidly, and died in six months.

Autopsy.—Head.—Calvarium very thin in spots and translucent at vertex. Dura mater thickened and adherent to skull-cap. Points of extravasated blood were found beneath membranes, and the convolutions were softened in parietal regions. The vessels were much congested, and those at base of brain were friable.

Man, age 62, had been insane some years, entertained delusions that his friends had robbed him and entered into a conspiracy to get possession of his property. Memory was seriously impaired; would forget business transactions from day to day; became miserly in his habits; hoarded up articles which had been cast away as worthless; charged neighbors with having stolen his watch; was untruthful and feeble in mind. A short time before admission was disturbed by a lawsuit which had been entered against him. At the trial was excited and talkative, and wanted to address the jury in an irrelevant and incoherent manner; after this became more disturbed, lost sleep and appetite and emaciated rapidly; he soon

was maniacal, noisy, profane, obscene in speech and resisted care. In this condition he was brought to the asylum. On the way he was destructive of clothing, broke the glass in the car window and cut his hand severely; was thin in flesh and feeble. He continued noisy and maniacal, gradually failed, and died a week after admission.

Autopsy.—Head.—Dura mater slightly adherent to arachnoid, considerable sub-arachnoid effusion; left lateral sinus plugged with a highly organized fibrinous clot, two inches in length; right sinus contained a white clot, not so highly organized; membranes easily detached; convolutions softened in places and tissues pulled away with membranes. Weight of encephalon fifty ounces.

Thorax.—Right lung adherent over entire posterior surface and lower lobe emphysematous; left lung also adherent and emphysematous.

Abdomen.—Liver fatty; mesenteric glands enlarged and filled with tuberculous matter.

Man, age 46, of good habits, had an attack of acute mania twelve years ago, and was treated in the asylum. He was discharged, recovered, and remained well till two years ago, when he fell from a tree and was unconscious for four or five days. For a year afterward he suffered from pain in the dorsal region, lameness and sometimes tenderness. He also had much pain in the eyes and was obliged to protect them from the light; pupils were dilated. During the winter he did some light work, but was excitable and talkative. In spring he became melancholic and depressed, and remained in the house complaining of the noise of any one talking, and of the jarring of going up or down stairs. He was feeble, lost flesh, walked with difficulty and slept under sedatives. Appetite

was variable and bowels irregular. He gradually grew worse till time of admission. He was then restless, talkative and maniacal, pressed his hand to his head as if in pain. At times he was quiet, would not reply to questions or manifest any consciousness, then had periods of restlessness and incoherence, with spasmodic twitchings of muscles of face and upper extremities. He became more maniacal, threw himself about, attempted to injure himself, refused food, tongue became dry, secretions offensive, evacuations involuntary. He failed rapidly and died in two weeks.

Autopsy.—Head.—Dura mater thickened and adherent to frontal and left parietal bones by strong fibrous bands. Some sub-arachnoid effusion. All the vessels were much enlarged and membranes congested. Convolutions of the cerebrum were softened in many places. Some were rust and others violet colored. The cerebellum was of a soft and creamy consistence. Left lateral sinus was filled with a firm, fibrinous clot, some two inches in length. A microscopic examination of the clot presented a laminated appearance, formed by the layers concentrically arranged. The exterior of the clot next the dura mater showed indications of fatty degeneracy. There were also numerous connective tissue elements scattered through the clot where it adhered to membranes of the sinus. Weight of encephalon forty-one ounces.

Thorax.—Whole surface of right lung adherent to pleura. Heart, normal. Abdomen, all the organs were in a normal condition.

Man, age nineteen; good habits. Had epilepsy for nine years prior to admission. Nothing further was known of his history. His mind was feeble; he did not converse or manifest any interest in his condition or surroundings. He con-

tinued to have frequent and severe seizures, lost control of the movements of his bowels and bladder, and retained his bed most of the time. After eighteen months he died in a fit.

Autopsy.—Head.—Dura mater thickened. Several bony plates were found on inner surface of the membrane, two of which had sharp projections. They were situated near the longitudinal sinus, one on either side. The largest was one and one-quarter inches in length, and one-half inch in width. The longest projection was about three-sixteenths of inch, and impinged on the pia mater, but had not lacerated it. The interior surface of all the plates was roughened and ridged. They were held in position by fibrous bands attached to the dura mater. The *pia mater* was much engorged, and the vessels were enlarged. Anteriorly there were points of extravasated blood beneath the membranes.

Thorax.—There were several cicatrices, a small abscess, and tuberculous deposits in apex of left lung. Right lung normal, heart enlarged, soft and fatty; abdomen, liver normal, kidneys congested and filled with blood. A large amount of bloody serum escaped from spinal canal, and the whole substance of cord deeply congested.

Man, aged twenty-five, intemperate in his habits. Father and mother had for years kept a low drinking saloon and house of ill-fame, and both had served sentences in state prison as receivers of stolen goods. After their release, the husband obtained a divorce from his wife and lived with another woman, to whom he claimed to be married. With her he resumed his former occupation. The place was well known to the police as a resort of criminals and abandoned characters. The patient had received a common education, and been employed as clerk in various offices, and on the canal. From

his own statement he had led a dissolute life, and had contracted venereal disease, which his condition, on admission, verified. His health having failed, he came home, boarded with his father, and engaged in the insurance business, but without success. He continued his evil associations, and gave himself up largely to drinking and dissipation. During this time he often threatened the life of his father and stepmother, secluded himself in his room, and shortly before admission had symptoms of fever, was described as delirious, out of bed and around the house with only his underclothes on, drank freely of liquor, became abusive, threatening and violent. The police were called in at times to quell the disturbances. One day a boarder in the house hearing a noise in the room occupied by patient, went up stairs and found him seated at the head, with a pistol in his hand. The patient discharged it at him, and the bullet passed through the right forearm. The injured man retired and soon after heard three pistol shots fired in quick succession. The police, summoned by the noise, went into the patient's room and found the stepmother lying dead on the floor. A ball had penetrated the chest, passed through the right lung, removed a portion of the wall of the aorta and lodged in the left lung. The patient was seated upon the side of the bed reloading the pistol. He was removed to the jail, and on the inquest gave a contradictory, confused statement of the affair; said, "the woman was trying to get into the room to kill me; I cocked the pistol when I saw she was going to kill me; I shot the bullet and it went plumb through her heart." He also made other statements giving a different version of the affair. An investigation was made before the county judge; he was declared insane and sent to the asylum. On admission gave a very long history of

his case, justified the shooting on the ground "that his step-mother had attempted to poison him, and that God had ordered him to send her to hell without a moment's warning;" that he had shot the man "because he had brought him bad water to drink." He was then in flesh; conjunctivae pearly, tongue heavily coated, features sharp and skin pale. He had two sinuses opening into palm of left hand, one between ring and fourth finger of right hand, one on left foot near big toe, and one in same position on right foot. For the first few days he was about the ward, talked incessantly, maintained his assertions as to the killing, and its justification, then became more feeble; was complaining, fault-finding, whining in speech and childish, asked for changes in room, in bed, in diet, ate and slept well, though he asserted he did not. After some two weeks there appeared an extensive swelling of left leg and foot, resembling somewhat phlegmonous erysipelas. The skin was raised in large patches, and blood and serum was effused beneath. There were some ten or more sinuses in region of buttocks discharging a purulent serum. The patient grew more feeble, and was evidently failing. Three days afterward, at about midnight, he had an extensive hemorrhage; when physician reached the bedside the bleeding had ceased. He was pale and cold, complained of chilliness, and teeth were chattering. Under the buttocks was a large pool of blood, and the abdomen was swelled and painful. He seemed perfectly conscious that he was sinking, and died at six o'clock in the morning.

Autopsy.—External appearances. Abdomen tympanitic. Left leg much swelled by infiltration of serum and large gangrenous ulcer eight by four inches. Another ulcer extended over arch of left foot toward internal malleolus. A deep sinus

existed near head of left fibula. On the right were two sinuses, one opening between great and second toes, and another more superficial near ankle joint. On right knee was an inflamed spot two inches in diameter, the skin was elevated by dark colored effusion beneath. A deep sinus opened between thumb and index finger of left hand, and another between ring and little finger of same hand. There was also one corresponding to this on the right hand. The sinuses opening in sacral and gluteal region, some ten in number, were found to communicate with each other, and formed a common abscess. Some of them were filled with thick yellow pus, and others with partly disorganized blood-clots.

Head.—Calvarium thin and soft; slight adhesions between dura mater and arachnoid; small amount of serous effusion under arachnoid; more abundant about medulla and base of brain. Brain tissue pale.

Thorax.—Small quantity of serum in pleuritic cavities. Lower lobe of left lung hepatized. Pericardial sac distended with about three ounces of a greenish fluid.

Heart.—Substance pale; right ventricle filled with frothy, watery blood; left ventricle empty; valves normal.

Abdomen.—Whole cavity distended with pus and serum, of a greenish color. Omentum firmly bound to intestines, and these to each other by adhesions. On attempting to remove the omentum, the intestines were torn through. The ileum was gangrenous near cæcal valve, and other portions of it were deeply congested and softened. Transverse colon highly inflamed; mesentery deeply congested, and the gland much enlarged and filled with cheesy material. Peyers' patches enlarged and ulcerated; pelvic cavity filled with a very offensive yellow pus; pancreas soft and of a yellow color; spleen

contracted. Both kidneys were enlarged and capsules easily detached.

Liver.—Convex surface covered with a thin layer of pus and lymph; tissue pale and fatty.

Microscopic examination of liver showed extensive fatty degeneracy. In fresh specimens, treated with ether, fat was dissolved.

The tubuli-uriniferi were enlarged and contained either an entire cast, or a portion of one, and transverse sections showed them choked up with debris of epithelium. Connective tissue was granular, particularly about the Malpighian bodies. The pancreas was in a state of fatty degeneration.

Man, age 29, good habits; no hereditary tendency to insanity. Patient was never robust, but had not suffered from any special form of disease. While in school, and afterward in college, was a very ambitious and successful student and took a high position in his classes. After graduation, continued his studies as a teacher, and more recently as a student of theology. Was a person of strong religious feeling, devoted to his profession, and observed with strictness seasons of fasting and exercises of his church, and was much given to long periods of prayer and seclusion. By these practices lost sleep and flesh, and was reduced in health and became gloomy and despondent. During the period of Lent two years ago, while in this state of mental and physical depression, and engaged in devotional exercises, he described himself as having had a sense of wonderful peace and confidence with hallucinations of hearing; heard the Saviour telling him to throw himself from the window and all would be well. He jumped to the sidewalk and sprained his ankles. From this injury he was confined to his room some weeks and was then taken home.

Here, against the advice and remonstrance of his friends, he persisted in the observance of fastings and in devotional exercises, was sleepless out of bed praying, and during the day prayed much with individuals and talked upon the subject of religion. He gained somewhat in flesh and strength; left home and canvassed for religious papers. He was at this time more comfortable and manifested more self-control, but was not well; dwelt much upon his spiritual condition. In the winter became more disturbed, lost sleep, called upon members of the clergy at night to get them to pray for him, and was taken by the police to his boarding-house. Father was informed and took him home. He was then inclined to wander about, seemed lost in meditation, abstracted and bewildered. A year from the time of attack was brought to the asylum, was in good flesh, eating well, but sleeping irregularly, pupils dilated, facial lines obliterated, talked coherently and gave his own history, verified by his father. For a few days he was quiet and comfortable, expressed a strong desire to get well, and a readiness to co-operate in any course of treatment for his relief—then passed into a maniacal condition, was noisy, excited, refused food or drink, threw himself about, making every effort to injure self; tongue was heavily coated and dry, urine contained albumen and pus. After a few days took food willingly, though still controlled by delusions and suicidal. At table suddenly stabbed himself in the cheek with a fork, and dislocated his thumb in an attempt to pull it off. He then became quiet, talked freely, and with regret of his suicidal efforts; ate and slept well, and employed his time in reading and studying. About a month after this became again somewhat depressed and gloomy, seemed thoughtful and gave evidence of a returning paroxysm. The next day after this

change was noticed, while walking the ward he stepped into a room and was found in a few moments with the humors of both eyes escaping. Nothing was found upon his person with which it was supposed the injury could have been inflicted. The patient afterward acknowledged that, influenced by the biblical saying, "if thine eye offend thee pluck it out;" he had inserted a pin deeply into each eye and then having torn through the cornea he had pressed out the humors. The injury produced total blindness. He immediately became maniacal, took nourishment sparingly, and at times refused food. At periods he conversed pleasantly with his friends, expressed regret for what he had done, at other times justified it as the only means of salvation. He slowly failed and died three months after admission.

A woman, thirty years of age, single, seamstress, with no hereditary tendency to insanity; but was of a highly, nervous and excitable organization, emotional and irregular in feeling; at times buoyant and lively, and then gloomy and depressed. Her health during early life was delicate, though she suffered from no definite form of disease. At the age of twenty, in April, 1862, she was seized with pain in the head. It was of short duration, but very severe, and during its continuance the patient was delirious. Attacks of the same character, both in the severity of the pain and the mental disturbance have occurred since, at intervals of from one to three months.* In 1864, she had acute rheumatism, and in 1865, a severe attack of diphtheria.

After the local disease of the throat had apparently subsided, vomiting supervened, and was repeated every few hours for

* From the subsequent history of the patient, especially while in the asylum, we are led to believe that these attacks of delirium took place at menstrual periods.

some five weeks. To relieve this condition and procure sleep, hypodermic injections of morphia were successfully employed, for about one week, and the patient rapidly regained her health. Some two years after this, or in July, 1867, she had an attack of inflammation of the bowels and peritoneum, and for four weeks was delirious most of the time. She improved somewhat in health, but for the four months succeeding had frequent attacks of frenzy, during which she often threatened to take her own and her mother's life, and became very difficult to control. In October following, she had improved so far as to pass from the immediate charge of her physician. Soon after this, he ascertained she was using hypodermic injections of morphia, to relieve pain in her limbs and different parts of her body. I quote from this letter :

“I was informed that she was using it (morphia) to a considerable extent, and called immediately to explain to her the effects and danger attending the practice. I believe every effort was made that could be to prevail upon her to desist, but all to no purpose. She was cunning and artful, and would almost always study out some plan to get the morphia. She has used as much as two drams in a week, in one or two well authenticated instances. The usual amount was one dram per week. She used but little, if any, for three or four months before she was sent to the asylum, for it was very difficult for her to get it. She has acted very strangely ever since her first sickness. She has been truly a mystery, which no one could solve.”

Her mother says that for years she has complained of pain, and pressed her hand on either side of her head, with the exclamation, “Oh, mother, mother, I shall die !” That for six years she has complained of such soreness of the head that

when she passed her hand over it, in smoothing her daughter's hair, she would cry out: "Oh, mother, don't; it hurts me so!" That five years ago, in 1867, she was obliged to call in help, as the patient threatened and intended to take her own life. That both before and after she began the use of morphia, her conduct was peculiar and erratic; that she was emotional, and easily disturbed by trifles. That after the morphia habit was known, her conduct for many years preceding was wrongly attributed to this cause.

A few weeks before she was sent to the asylum she passed into an acutely maniacal condition, in which she was sleepless, ate little and irregularly, lost flesh and strength rapidly, and became quite feeble. She was destructive of clothing, pulled her hair out, was noisy, incoherent and violent; opposed care, wandered about, and was with difficulty controlled.

In this condition she was admitted to the institution on the 5th of May, 1871. She was carried to the ward and placed in bed. Examination revealed scars and ecchymosed spots, covering nearly the whole of the body which could be reached by her own hand. She asserted that she had employed the hypodermic injections for three and one-half years, once, and much of the time twice a day, making, in all, about 2,000 injections; that, during the last few months of its continuance, she had used a dram and one-half of morphia per week; that she inserted the needle perpendicularly to the surface, and often carried its full length into the tissues. For two days she was sleepless, and retained no nourishment. Chloral, in thirty grain doses, was then administered, which was tolerated by the stomach, and secured sleep. The vomiting gradually became less frequent, and soon ceased. She ate well, gained flesh and strength, all maniacal symptoms subsided, and in twenty days

she was up and about the ward. Menstruation, as she said, had been suppressed for two years. As she complained of pain in the back, and other symptoms which usually preceded it, she was placed on use of capsules of apiol, and on the 24th of June, began to menstruate, but the flow was scanty, and accompanied by much pain.

During the month following, she steadily gained in mental strength, and became quite stout. At time of next menstrual period, the right breast swelled to an extraordinary size, so that we were obliged to suspend it with adhesive straps. It was hard, and extremely sensitive to the touch. This condition of swelling and tenderness extended in a narrow ridge to the spine. The state of the breast was at first supposed to be owing to the sympathetic action of the organ, with the renewed activity of the menstrual function. For two weeks applications were employed, without success, to relieve the pain and tension. At this time, on the 13th of August, the patient, in rubbing her hand over the breast, discovered an elevated point, just under the skin, which on pressure gave a pricking sensation. This was cut down upon, and a broken needle extracted. On the 15th, another needle was removed. The breast was now inflamed and extremely sensitive. August 28 another needle was taken out. August 29 menstruation began again; the flow was profuse, and she became at once delirious; was talkative, restless, profane and obscene, and pulled her hair out. She continued in this condition some twelve hours, and, as she stated, the next day, was entirely unconscious of what occurred.

From this time till September 28, from one to five needles were removed daily from the breast. Menstruation then occurred again, and was characterized as before by a similar

attack of mental disturbance. After this, during the months of October and November, needles were taken from various parts of the body ; from the left breast, the abdominal parietes, the mons veneris, the labia and vagina. Of these latter, some passed across the urethra, and rendered urination difficult and painful ; others across the vagina, either end being imbedded in opposite sides. Some were removed from the thighs, from the leg down to the ankle, from the buttocks, from about the anus, from the back as high up as between the shoulders. The largest number extracted in any one day was twelve.

On one occasion ether was administered, but the difficulty experienced in bringing her under its influence, and the mental disturbance produced by it were so great that it was not again resorted to. During the whole period, to her final illness, she retained her flesh, though she ate and slept irregularly, under use of tonics and sedatives. She was in a variable mental state, at times irritable, petulant, fault-finding, attempting to create ill-feeling between attendants, and demanding unnecessary care and waiting upon. At other times she was abnormally cheerful, gay, pleasant, and fulsome of praise of all around her.

For the first two months but comparatively little pain was felt in the extraction of the needles. The skin was thickened, harsh and dry, and almost insensible from the prolonged and distributed use of the injections. Afterward she suffered acutely, and often begged with tears that their removal might be postponed from day to day. About a month before death she had an attack of localized pneumonia, affecting the lower portion of right lung ; this was accompanied by stridulous breathing, spasm of the glottis, globus hystericus, crying, and other hysterical manifestations. It was followed by an attack

resembling muscular rheumatism, characterized by great pain and hyperæsthesia of surface; the right arm was swelled, hot and extremely sensitive; it was supported on a pillow and kept bathed in anodyne lotions. She lost appetite and sleep, became much depressed, and gave up all hope of recovery. Her tongue became dry and brown, pulse rapid, secretions offensive, and mind very feeble. A diarrhea supervened, and the evacuations of bowels and bladder were involuntary. She became unconscious, and finally comatose, and died on the 25th of December, 1871.

No needles were removed during the last two weeks; 286 were taken from her body during life; 11 were found in the tissues after death; 3 were passed from the rectum during sickness; making a total of 300 needles and pieces. Of this number, 246 were whole, and 54 were parts of needles. One was a No. 1 sewing machine needle, and several were bent. They varied in size from No. 4 to No. 12. As regards position in the body, they were distributed about as follows: In right breast, 150; left breast, 20; abdomen, 60; genitals, 20; thighs and legs, 30; back, 20. Of those removed after death, 5 were found in the right and three in the left breast; one in a small abscess in the epigastric, and one in the right iliac region, the point impinging upon the peritoneum, which was discolored with rust; and one in the upper part of lower lobe of left lung. The presence and position of the needles were indicated to the patient by the pricking sensation occasioned by muscular movements. They were removed in a few instances at first by cutting down upon them. This proved to be a painful, and, from the movements of the needles in the tissues, a difficult process. Hemorrhage from the small vessels, at times, gave some trouble. Afterward, by manipulation, the ends of the

needles were engaged between the thumb and forefinger, and the points, forced through the skin, were seized and the needles extracted with forceps. Sometimes much force was required to withdraw them. They changed position quite readily, and frequently moved from one to two inches in the day. They produced little local irritation or trouble beyond the pricking sensation, and did not seem to have contributed in any notable degree toward producing the fatal result. In regard to the presence of this large number of needles in the system, no information could be obtained. The patient repeatedly and persistently denied any knowledge of having introduced them, either by the stomach or through the skin. Her mother, who visited the asylum, could throw no light upon the subject, and was entirely ignorant of the fact until informed by us. She, however, recalled the circumstances that the patient purchased at one time ten papers of needles, and could account for only two of them. They were not obtained or introduced while in the asylum. She was under strict surveillance, and had no means of obtaining any number of needles, and those removed were all rusted and bore evidence of having been a long time in the body. The stomach was closely examined after death, and was in a perfectly healthy condition, with no evidence of any previous inflammatory action.

The only theory, which seems to us at all tenable, is that they were introduced through the skin, while she was under the influence of morphia, hypodermically administered, and while suffering from hysteria. That some were found in positions where they could not have been inserted by the patient, can be accounted for by their movements in the tissues, which were observed so often during the life of the patient.

The diseased condition of the brain and its membranes was a cause sufficient to account for the abnormal mental action and conduct of her who had been "truly a mystery which no one could solve." We close this remarkable case with a transcript of the *post-mortem* examination.

Autopsy.—Rigor present, body well nourished; anterior surface thickly studded with small cicatrices; abdomen covered with thick layer of fat. A small abscess in abdominal wall, two inches above umbilicus, three inches by one and one-half, was filled with pus, and contained one needle. A second abscess, two inches above and to the right of the symphysis pubis, immediately under Poupart's ligament, contained another needle; this pressed upon the peritoneum, which, though discolored by rust, was not inflamed. From the right breast one whole and four broken needles, and from the left one whole and two broken needles, were removed.

Head.—Arachnoid opaque, and thickened over right hemisphere. The left hemisphere was covered by a thin layer of pus contained in the sub-arachnoid space. Marked depression of convolutions at vertex of both hemispheres; the brain substance was firmer than normal; the ventricles were empty, and the choroid plexus contained numerous small cysts upon its surface, filled with serum.

Thorax.—The lower lobe of the right lung was hepatized. A whole needle was found in the upper part of the lower lobe of the left lung.

Abdomen.—The liver was soft and fatty, and the spleen enlarged; kidneys were normal. The stomach was subjected to a critical examination. It was found normal, and there was no evidence that the needles were introduced into the system through that organ.

Woman, age forty-seven; married; native of New York; no insane relations; patient usually enjoyed good health until about a year before admission, when she lost in flesh and became wakeful, due to overwork; for a year was gloomy and despondent; lost all interest in her household duties; said everything was wrong about her house; became suspicious; said she was to be poisoned; cried and moaned much of the time; talked often of suicide; in attempting it, took one ounce of laudanum, which she vomited as soon as swallowed; at another time, hung herself behind a door in a hoop skirt; was detected and then closely watched; for some time carried a butcher knife, and at night placed it under her pillow with the knowledge of her friends; on admission, was melancholy; seemed to realize that she was sick, and confessed that she was insane; she slept well the following night and in the morning was cheerful; talked freely of her condition, and expressed herself well satisfied that she was brought to the asylum; in the afternoon of the same day spoke of the disgrace of suicide, and said "but for my husband, I would have been dead long ago;" she retired as usual in an associate dormitory the following night, and seemed quite cheerful; at about nine P. M., complained of slight colic, which was soon relieved; at one and three A. M., the following morning, the night watch found her sleeping; at four A. M., she got out of bed and walked a few times up and down the room, waking some of the patients and conversing with them; she then retired and the patients went to sleep; at five A. M., again visited by night watch, when she found life extinct, but body warm; at once reported to physicians; on examination, her hands were bloody, night dress thoroughly saturated with blood;

the hair mattress and straw tick contained clotted blood, and a pool under the bed; in the bed was found a small piece of the rim of an earthen vessel, about one by one and a half inches in size, with one very sharp edge; this was covered with blood; on the floor was two other pieces of freshly broken earthenware, which, with the first piece, fitted exactly the broken space in the chamber under her bed; during all this, none of the patients were awaked; the body was colorless; two cuts were found in groin, parallel to a line drawn from the anterior superior spinous process of the crest of the ilium, to a point two inches below the symphysis pubis; each were four inches in length, and at the deepest point one and a quarter inches, dividing the femoral artery completely on the left side, and cutting a small opening in the femoral, on the right side; on the right side, there were four small cuts besides the deep one; there were also numerous scratches in left elbow joint; the husband subsequently stated that he had frequently noticed her reading a school book on anatomy and physiology.

Woman, aged 39; married, no children, good habits; native of Ireland. She was always a hard-working woman and enjoyed good health, with the exception of an attack of muscular rheumatism. In August last had a fit; could not speak for a few minutes afterward; complained of numbness of hands and feet; about four weeks before coming to the asylum, had another fit, with loss of speech; after this she grew feeble in mind, became dull and sleepy, was indifferent and forgetful; frequently put only bread on the table; complained of headache soon after the last fit; after the the third fit became helpless and speechless, but retained consciousness; after this was noisy and maniacal, at

times singing, laughing, crying; her appetite was good, but she lost in flesh; on admission was talkative and noisy; hesitancy and thickness in speech, so that at times she could with difficulty be understood; talked like a person intoxicated; also marked complacency of countenance; said she was well and never enjoyed better health; gait unsteady; no change in pupils; was frequently maniacal and destructive, at other times laughing, crying or singing; her appetitite was good and she usually slept well; the paretic attacks were frequent, and her speech became more disturbed. For a week previous to her death had paralysis of right side, which continued; deglutition was difficult; passed her excrement in bed; she gradually failed, and died paralyzed five months after admission.

Autopsy.—Skull-cap normal; dura mater adherent to skull-cap; subarachnoid serous effusion; meningeal vessels distended with blood; on surface of left hemisphere were two blood clots. Right hemisphere was much larger than the left, and all the convolutions were softened; left hemisphere was harder than usual, and gray matter very thin. Left lobe of cerebellum softened, right lobe indurated; pons variolii and medulla soft.

Woman, age 48, single, good habits, native of New York; patient usually enjoyed good health till attack of insanity in 1845. In 1847 was admitted to the asylum; she had always been a nervous, excitable person, and considered eccentric; resided alone, because of her peculiar behavior no one would live with her; on admission was quiet, in fair flesh, showed evidences of having been insane for some time, was idle and retiring, irritable and seclusive for some years afterward; interested herself in sewing most of the time; developed delusions that she owned the asylum and was married; was usually

quiet, and continued in her ordinary health until about two years preceding her death, when she began to grow more feeble both in mind and body; she dabbled in water and was childish, working over her dresses very frequently. From this time she required constant care as a feeble old woman, but retained her delusions. After complaining of headache during the day she died suddenly in the evening.

Autopsy.—Skull-cap thin, dura mater firmly adherent at vertex; between dura mater and skull-cap, at the upper part of right parietal bone, a recent blood clot measuring two inches in length by one in breadth; vessels in frontal region pale and contained only serum—considerable subarachnoid effusion.

Thorax.—Old pleuritic adhesions binding right lung to walls of the chest, upper lobe of right lung contained a small abscess filled with pus.

Woman, age 50, widow, seven children, no hereditary tendency to insanity. Patient was said to have been insane for four weeks; nothing further was known of the case by the officer who accompanied her to the asylum. In office presented all the symptoms of general paresis; twitchings at the angles of the mouth, tremulousness of the tongue, hesitancy of speech, and unsteadiness of gait; her pupils were of unequal size; had delusions of wealth, said she owned the whole world; was serene, placid, and seemed to be perfectly happy; was thin in flesh, and complained of headache. For some days after admission she continued quiet; very feeble in both mind and body; had to be dressed and undressed; was stupid; ate fairly and usually slept well; two months after had a parietic seizure; from this time lost complete control of her sphincter; pupils contracted, tongue more tremulous, and increased hesitancy in speech, with great difficulty in protruding the tongue; had a

number of paretic seizures during the last two months. Died paralyzed four months after admission.

Autopsy.—Skull-cap normal. Dura mater adherent to arachnoid. Convolutions of cerebrum atrophied and softened; gray matter very thin; a number of apoplectic clots at junction of lower cervical and upper dorsal; vertebræ adherent to sheath of spinal cord.

Thorax.—About six ounces of serum in right pleural cavity; a number of calcareous deposits in right lung.

Woman, age 48; widow, two children; good habits; native of Massachusetts. Insanity not hereditary. Patient was unwell for about six years; suffered from headaches and umbilical hernia; at one time was very fleshy, weighing 300 pounds. The tumor, which was the size of a goose egg, became smaller about a year before admission, and a fistulous opening appeared which discharged constantly a muco-purulent matter. Symptoms of insanity developed about two months before coming to the asylum; was talkative, excited and incoherent in speech, suspicious of her friends and family, ate irregularly and was wakeful at night; threatened to kill her children. This was her condition on admission. She gradually grew feeble and was put to bed. Fistulous opening discharged fæcal matter and was offensive. On the fourteenth day after admission had a severe epileptic fit, and, on the day following, had three more. She took liquid food in small quantity and usually slept well. About two weeks after had another severe epileptic fit and became maniacal and violent. Choroid plexus contained large cysts; pineal gland large and pale; vessels of the circle of melis atheromatous. Weight of brain forty-three and one-half ounces.

Thorax.—Pleural cavity contained eight ounces of serum; right upper lobe adherent to chest by firm fibrous bands; thick deposit of lymph over right lower lobe; lower lobe of left lung hepatized; heart contained four ounces of serum; marked fatty deposit along the course of coronary arteries; left ventricle contracted; right ventricle dilated with fluid blood; muscular walls softened.

Abdomen.—Cavity contained large amount of serum; under surface of diaphragm covered with lymph of a yellow tinge, and other portions of the peritoneum thickened and deeply congested; the intestines and liver were bound to the peritoneum by fibrous bands. In the gall bladder was found a gall stone which weighed 185 grains; it was smooth and round; kidneys were normal.

Woman, age thirty-three; married; five children; native of New York; a sister had been insane. Patient had been married for seventeen years, and usually enjoyed good health. Last child was born about nine months previous to admission, after which she developed symptoms of insanity; was depressed and melancholy; this condition continued until two weeks before coming to the asylum, when she was maniacal and violent; tore off her clothing; was abusive and profane; this was her condition when admitted; her complexion was sallow; pupils widely dilated and eyes dry; she opposed care and took liquid food sparingly; usually slept well under influence of anodynes; the maniacal state continued during the day; she continued well and excited until two days preceding death, which was in July, when she had an attack of double pneumonia, from which she died on the fourteenth day after admission.

Autopsy.—Skull-cap, normal; dura mater adherent to

arachnoid; from this time she gradually failed, and after remaining in the asylum six weeks died.

Autopsy.—Head—skull-cap—cranial bones thin; dura mater adherent; about two ounces of serum under the arachnoid; brain tissue, firm; number of cysts in choroid plexus.

Thorax.—Left lung firmly adherent to chest by old pleuritic adhesion.

Heart.—Pericardium contained one ounce of serum.

Abdomen.—At the umbilicus there was a soft tumor, which contained a portion of the intestine; evidences of old inflammatory action around the hernia, about five feet from the pyloric orifice of the stomach; the intestine was constricted, which was found to correspond with the tumor in the abdomen.

Woman, age 69; widow, mother of six children; native of New York; a sister had been insane. In 1863, patient had an attack of melancholia, and was in the asylum for two years and was discharged recovered and remained well until 1869, when she had another attack; on admission was depressed and strongly suicidal; thin in flesh and anæmic; ate sparingly and slept irregularly; she had depressing delusions regarding her family, and had no appreciation whatever of her condition. She continued melancholy, though at times was more cheerful, until a day before her death, when she had an attack of peritonitis, from which she died, twenty-eight months after admission.

Autopsy.—*Head.*—Skull-cap, frontal bone nearly half an inch in thickness; dura mater attached to skull at vertex; meningeal arteries distended with fluid blood; dura mater adherent to arachnoid at many points by fibrous bands; convolutions of

brain small over anterior portion of cerebrum; considerable subarachnoid effusion; vessels in all the membranes congested.

Thorax.—Pleura adherent to walls of the chest; a quantity of recent lymph found in pleural cavity; both lungs engorged with blood.

Woman, age 24; single, school teacher, good habits, native of New York. Patient had been teaching for twelve years previous to the attack; was always in delicate health, thin in flesh and anæmic, with a scrofulous diathesis; from childhood was nervous and hysterical; showed evidences of insanity for more than a year before coming to the asylum. Her friends stated that during the first six months she was confined to her bed in an apparently unconscious condition, and required constant care; after she aroused from this condition, became gloomy and depressed, expressed delusions of fear and suspicion regarding her family. On admission was thin in flesh, pale and anæmic; phthisis diagnosticated, and she had chronic ozena. In spite of treatment she gradually failed; had slight cough, but did not expectorate; had no hectic and never complained of pain. Two weeks before death had paralysis of right side; from this time failed rapidly and died eleven months after admission.

Autopsy.—Skull-cap normal; dura mater adherent to the vertex; considerable serous effusion over cerebellum; convolutions of cerebrum atrophied.

Thorax.—Sternum spongy, and ribs fragile; firm pleuritic adhesions over right side; both lungs had a greenish hue; lower lobe of right lung firmly adherent to diaphragm; in left lung there were a number of small abscesses; the upper lobe of right lung contained a large abscess filled with pus.

The Matron reports the following articles made in the house during the year, in addition to the mending:

Towels	971
Sheets	798
Pillow cases	724
Shirts	541
Handkerchiefs	537
Dresses	520
Drawers, pairs	870
Aprons	813
Skirts	288
Wrappers	198
Chemises	168
Cupboard spreads	81
Comfortables	68
Curtains	66
Night dresses	81
Table cloths	80
Hose, pairs	25
Bureau spreads	24
Stand spreads	24
Whole number of articles.....	<u>5,776</u>

There have been made in the tailors' shop the following named articles:

Straw bed-ticks	100
Overalls, pairs	75
Overshirts	27
Full suits	4
Drawers	8
Pants	2
Vests	1
Whole number of articles.....	<u>212</u>

The steward makes the following report of the farm and garden :

Apples, 16 bushels, at 75 cents	\$12 00
Asparagus, 426 bunches, at 8 cents.....	34 08
Beans, butter, 18 bushels, at \$3.....	54 00
Beans, dry, 26 bushels, at \$2.50.....	65 00
Beans, Lima, 18 bushels, at \$3.....	89 00
Beans, string, 18 bushels, at \$2	86 00
Beets, 750 bushels, farm, at 40 cents	300 00
Beets, green, 564 bunches, at 4 cents.....	22 56
Beets, 1,164 bushels, garden, at 40 cents	465 60
Cabbages, 2,688 heads, at 10 cents	268 80
Carrots, 743 bushels, at 40 cents,.....	297 20
Cauliflowers, 882 heads, at 12 cents.....	45 84
Celery, 6,310 heads, at 6 cents.....	878 60
Corn stalks, 45 tons, at \$4.....	180 00
Corn, green, 142 bushels, at \$1.50.....	218 00
Cucumbers, 36 barrels, at \$4.....	144 00
Cucumbers, green, 60 bushels, at \$2.....	120 00
Hay, 135 tons, at \$20 per ton.....	2,700 00
Lettuce, 2,468 bunches, at 6 cents	148 08
Milk, 118,608 quarts, at 6 cents.....	6,816 48
Oats, 60 bushels, at 65 cents.....	89 00
Onions, 221 bushels, at \$1.50.....	381 50
Onions, green, 560 bunches, at 10 cents.....	56 00
Parsley, 64 bunches, at 6 cents.....	8 84
Parsnips, 182 bushels, at 40 cents	52 80
Peas, 10 bushels, dry, at \$3.....	80 00
Peas, 134 bushels, green, at 75 cents	100 50
Pie plant, 4,635 bunches, at 6 cents	278 10
Potatoes, 2,812 bushels, at 40 cents.....	112 48
Salsify, 500 bushels, at 75 cents.....	375 00
Squash, 3,478, Hubbard, at 20 cents.....	696 60
Squash, 312 summer, bushels, at 6 cents.....	18 72
Tomatoes, 539 bushels ripe, at \$1.....	539 00
Tomatoes, green, 364 bushels, at \$1....	364 00
Turnips, 438 bushels, at 40 cents.....	175 20
	<hr/>
	\$15,511 48

STOCK ON FARM.

Eleven horses, two yoke of oxen, two bulls, thirty-one cows, two heifers, one calf, ninety-nine hogs.

Amount received for pigs and pork sold.....	\$244 19	
Pork slaughtered for use of house	1,653 47	
Value of swine on hand	1,175 90	
		<hr/>
		\$3,178 56
Value of swine on hand Dec. 1, 1871.....	\$2,696 00	
Amount paid for feed 1871.....	402 11	
		<hr/>
		3,098 11
		<hr/>
		\$75 45
		<hr/>

During the year services have been held in the chapel, by Rev. Mr. Miller, of the Presbyterian church, of Philadelphia, and Rev. Mr. Brown, of Utica, Rev. Dr. Ayrault, of the Episcopal church, of Oxford, N. Y., and Rev. Mr. Hayar, of Utica, Rev. Drs. Patton and Cory, of the Baptist, and Rev. Mr. Haitley, of the Reformed church of Utica. These gentlemen have kindly supplied the pulpit in place of the Chaplain, Rev. W. T. Gibson, D. D., in times of his absence. To Dr. Kempster, of the asylum staff, and Rev. Mr. Whitfield, of Utica, we are indebted for several magic lantern exhibitions.

Mr. Forrester, of Utica, and Mr. Meech, of Buffalo, with their respective dramatic companies, gave entertainments which afforded much pleasure to the patients. Mr. William Carr, of Scotland, gave two readings of choice selections, and Prof. S. A. Morse, of Salem, Mass., favored us with a lecture upon "Animals, how they walk." To all of these gentlemen we desire to express our thanks for the amusement and instruction which they afforded our household.

Mr. John E. Williams, of Aurora, N. Y., sent a quantity of grapes, which were distributed to the patients.

From the Messrs. Van Heusen, Charles & Co., of Albany,

the institution received a present of a stereopticon, and Miss D. L. Dix presented twenty-five stereoptic views.

To the Hon. Nelson K. Hopkins, Comptroller, and Hon. G. Hilton Scribner, Secretary of State, we acknowledge our indebtedness for packages of newspapers sent from their respective offices. These, with the exchanges we purchase from the Utica city papers, afford a large amount of newspaper reading.

There has been no change in the officers during the year. I desire to record their fidelity, and the fact that they have all zealously co-operated in carrying out such measures as have been necessary for the highest welfare of the patients and the best interests of the public.

The same attendants and employes, with few exceptions, remain in all chief places of responsibility, and have rendered willing and valuable services. It is highly important to the efficiency of an institution to retain in its service experienced employes, and in this respect this asylum has been very fortunate for many years. It has also furnished many trained persons for other institutions of the State.

I desire to thank you, gentlemen, for uniform personal courtesy, and the generous aid given me at all times in the conduct of the institution. I appreciate the great responsibility of the trust confided to me and need your counsel. Committing the institution with all its great interests to the merciful care of an overruling Providence, whose guidance in all our duties we reverently seek, we enter upon another year.

JOHN P. GRAY.

APPENDIX.

Reference to laws passed by the Legislature relative to insane persons :

Part 1, chapter 20, title 3, art. 1 of the Revised Statutes, "Of the safe keeping and care of lunatics."

Session Laws, 1842, chapter 135, "An act to organize the State Lunatic Asylum, and more effectually to provide for the care, maintenance, and recovery of the insane."

Session Laws, 1850, chapter 282, section 2, relating to sending indigent insane persons, not paupers, to the asylum.

Session Laws, 1851, chapter 446, amending the law respecting indigent insane persons.

"The county superintendents of the poor of any county, and any overseers of the poor of any town to which any person shall be chargeable, who shall be or become a lunatic, may send such person to the lunatic asylum by an order under their hands."

The order of a county judge secures the admission of indigent persons, not paupers ; in which order it must be stated that the applicant became insane within one year prior to the date of the order. (Section 26 of act of 1842, and section 2 of chapter 282, Session Laws, 1850.)

The object of this humane provision is, undoubtedly, to extend the benefits of this institution to persons with limited means, whose insanity is of a recent date, and therefore probably curable, and, if recovered in the space of two years, restoring them to their families and their property unimpaired, and saving them from the paralyzing influence upon their future life of finding themselves, by the loss of health and reason, reduced to beggary. Patients sent through this channel generally supply their own clothing and pay their own traveling expenses to and from the asylum.

Patients supported by their friends are received without any other paper than certificates from county or bank officers, or other prominent individuals, of the ability of those who become bound for their support in the asylum, to meet all expenses incurred.

The form of agreement entered into by the persons or sureties who become bound for the patient admitted, is as follows:

“Whereas, ———, of the town of ———, in the county of ———, an insane person, has been admitted as a patient into the New York State Lunatic Asylum at Utica; now, therefore, we, the undersigned, in consideration thereof, bind ourselves to Edmund A. Wetmore, treasurer of said asylum, to pay to him and his successors in office, the sum of ——— dollars and ——— cents per week for the care and board of said insane person so long as he shall continue in said asylum, with such other charges as may be occasioned by his requiring more than ordinary care and attention, and also to provide him with suitable clothing and pay for all such necessary articles of clothing as shall be procured for him by the steward of the asylum, and to remove him from the asylum whenever the room occupied by him shall be required for a class of patients having a preference by law, or whenever he shall be required to be removed by the managers or superintendent; and we also engage to pay all expenses incurred by the managers or superintendent in sending said patient to his friends in case one or either of us shall fail to remove said patient when required to do so as aforesaid; and if he shall be removed at the request of his friends before the expiration of six calendar months after reception, then we engage to pay board for twenty-six weeks, unless he should be sooner cured, and also to pay, not exceeding fifty dollars, for all damages he may do to the furniture or other property of said asylum, and for reasonable charges in case of elopement, and funeral charges in case of death; such payment for board and clothing to be made semi-annually, on the first of February and August in each year, and at the time of removal, with interest on each bill, from and after the time it becomes due.

“In witness whereof, we have hereunto set our names, this the ——— of ———, in the year 187—.”

This agreement, or understanding, is generally signed by near relatives or other friends of the patient, or legal guardians, if any

such there be, at or prior to the time of admission, or subsequently, upon the deposit, on the admission of a patient, of a sum of money sufficient to secure its execution.

“When an insane person, in indigent circumstances, shall have been sent to the asylum by his friends, who have paid his bills therein for six months, if the superintendent shall certify that he is a fit patient, and likely to be benefited by remaining in the institution, the supervisors of the county of his residence are authorized and required, upon an application, under oath, in his behalf, to raise a sum of money sufficient to defray the expenses of his remaining there another year, and to pay the same to the treasurer of the asylum. And they shall repeat the same for two succeeding years, upon like application and the production of a new certificate each year, of like import, from the superintendent.”

We regret to be obliged to call the attention of county officers to the following law, which is too frequently overlooked or disregarded:

“All town and county officers sending a patient to the asylum, shall, before sending him, see that he is in a state of perfect bodily cleanliness, and is comfortably clothed and provided with suitable changes of raiment, as prescribed in the by-laws.”

We request, especially, that patients brought to us from county-houses be clean and free from vermin.

All patients require at least two suits of clothing, and several changes of under garments. Most of the patients go out regularly, and consequently require clothing suited to the season. For males, great-coats and boots are required in winter; shoes answer in summer; slippers are worn in the house. Females also need ample clothing for walking and riding in the winter.

The supply should be liberal when it can be afforded. All clothing is marked with the name of the patient to whom it belongs, and much pains are taken to have it kept in good order and repair.

The removal of a patient should not be attempted while laboring under severe bodily disease, as fevers, erysipelas, large and dangerous wounds or sores, consumption, etc.

In conveying a patient to the asylum, let it be done by force rather than by deception. Truth should not be compromised by planning a journey to Utica, or a visit to the asylum, and when

there, suggesting the idea to the patient of staying, while his admission was already decided upon; nor should patients be induced to come and stay a few days to see how they like it, under the impression that they can leave at pleasure. Such treachery not only destroys confidence in friends, but also, too often, in us, by the seeming conspiracy to which we are supposed to be a party, than which there can scarcely be a greater barrier to improvement. The patient should be brought by an intelligent and intimate acquaintance, who will be able to give a minute history of the case, or written account should be transmitted. In the latter should be stated the name, age, married or single, number of children, occupation, degree of education, profession of religion, habits, nativity, residence, predisposing and exciting causes. Here give a minute history of the patient from youth up, temperament, peculiarities, disposition, etc.; also the cause supposed to have affected the patient immediately preceding the attack; state what relatives, near or remote, are or have been insane or peculiar; also what disease the patient has suffered from, fits, skin diseases, dyspepsia, constipation, piles, ulcers, etc. Give the date of the attack, going back to the first noticeable disturbance, no matter how slight; also the duration of the more marked and decided symptoms, the number of attacks (if this be not the first), and, if ever before admitted, the number of admissions to this asylum, and how complete was the recovery in the intervals between the attacks; state fully the condition of the patient at the time of admission; whether suicidal or homicidal; whether he eats, sleeps, strikes, breaks, destroys, or is noisy or inattentive to personal cleanliness, and whatever else may occur to the friends, likely to be useful to us.

It is desirable that application for admission be always made before the patient is brought to the asylum, in reply to which any desired information will be cheerfully furnished. All correspondence about or with patients should be post paid, and addressed to Dr. Gray, superintendent of the State Lunatic Asylum, Utica, N. Y.

STATE OF NEW YORK.

No. 63.

IN SENATE,

March 21, 1873.

LIST OF GENERAL ORDERS.

S. O.

310. An act to authorize the trustees of the village of Kinderhook to borrow money to be expended in the purchase of a lot of ground and the erection thereon of a suitable building adapted to the purposes of a public hall and a room for a fire engine for the use of said village.
311. An act to incorporate Engine Company No. 9, in the town of Middletown, Richmond county, State of New York.
312. (Assembly, 168.) An act to amend an act entitled "An act to incorporate the village of Oswego Falls," passed March 22, 1866.
313. (Assembly, 156.) An act to enable the electors of the town of Manchester, Ontario county, to hold their town elections in separate election districts thereof.
314. (Assembly, 146.) An act to enable The Evergreens to acquire and hold a certain piece of land.
315. (Assembly, 27.) An act to authorize the sheriff of the county of Kings to appoint certain court officers.
316. (Assembly, 25.) An act concerning notaries public.
317. (Assembly, 142.) An act in relation to mechanics' liens in the city of New York.

G. O.

318. (Assembly, 143.) An act to amend section 112 of chapter 2, part 3, article 7 of the Revised Statutes, in relation to justices' courts.
319. (Assembly, 180.) An act to authorize the board of supervisors of the county of Greene to provide for the payment of the principal of a portion of the bounty debt of said county by issuing new bonds.
320. (Assembly, 58.) An act to release the interest of the people of this State in certain real estate in the city of Brooklyn to Charles Ferber.
321. (Assembly, 60.) An act conferring certain additional powers upon the Comptroller.
322. (Assembly, 55.) An act to release the interest of the people of the State of New York in certain real estate to Henry Fischer.
323. An act to amend an act entitled "An act to provide for draining swamp lands in the towns of Lima, Livonia and Avon, in the county of Livingston," passed April 20th, 1866.
324. An act to incorporate the Central New York Agricultural, Horticultural and Mechanical Association.
325. (Assembly, 112.) An act authorizing the Schuyler County Agricultural Society to mortgage its property and issue bonds thereon for certain purposes.
326. An act to protect passengers on railroads from the ordinary dangers incidental to the passage of trains over draw-bridges in this State.
327. An act authorizing and directing the Comptroller of the State of New York to convey certain lands of the Tonawanda reservation to the trustees of the Tonawanda Reservation Manual Labor School for the purposes of such school, and reappropriating certain moneys formerly appropriated therefor.
328. An act in relation to elections in the village of Akron, county of Erie.
329. An act regulating the responsibility of agents of insurance companies.

G. O.

330. An act to repeal an act passed May 16th, 1872, entitled "An act to amend 'An act authorizing the confinement of convicts from Dutchess county in the Albany penitentiary,' etc., passed April 15th, 1854."
331. An act to amend an act entitled "An act in relation to the debts of the town of Newtown, Queens county," passed May 21, 1872.
332. An act in relation to the keeping open of certain public offices in the county of Kings.
333. An act to amend an act entitled "An act for the protection and improvement of the Tonawanda band of Seneca Indians residing on the Tonawanda reservation in this State," passed April 7th, 1863.
334. An act in relation to the Mohawk and Newport Plank-road Company.
335. An act to amend chapter 397 of the Laws of 1868, entitled "An act to provide for the proving of certain maps and other papers of the Farmers' Trust and Loan Company in the county of Cattaraugus."
336. An act to facilitate the removal of the remains of bodies interred in an ancient and disused burial plot, at Cornelison Point, Nyack, Rockland county, State of New York.
337. An act to amend an act entitled "An act to incorporate the New York Bridge Company, for the purpose of maintaining and constructing a bridge over the East river, between the cities of New York and Brooklyn," passed April 16, 1867.
338. An act to legalize certain assessments ordered by the common council of the city of Buffalo, and contained in certain rolls heretofore delivered to the comptroller of said city.
339. An act to amend an act entitled "An act to incorporate the city of Cohoes," passed May 19, 1869.
340. An act to amend an act entitled "An act to incorporate the city of Binghamton," passed April 9, 1867, and the several acts amending the same.
341. An act to amend an act entitled "An act to supply the city of Binghamton with pure and wholesome water," passed April 25, 1867.

G. O.

342. An act to authorize the city of Binghamton to provide for the deficiency in the assessment of the Court-street pavement, and to liquidate the outstanding indebtedness of said city.
343. (Assembly, 246.) An act to amend an act entitled "An act to provide for a supply of water in the city of Poughkeepsie, and for sewers therein," passed April 12, 1867.
344. (Assembly, 201.) An act to amend the charter of the city of Rochester, and authorize said city to issue its bonds.
345. An act for the relief of the Refuse Transportation Company.
346. (Assembly, 193.) An act to amend "An act in relation to common schools in the city of Elmira," passed April 4th, 1859.
347. (Assembly, 265.) An act relative to common schools in the city of New York.
348. An act to incorporate the Riverside Police Association of the city of New York.
349. An act to provide for the compensation of persons appointed under chapter 580 of the Laws of 1872.
350. An act to authorize the Oswego Falls Agricultural Society to mortgage its real estate.
351. An act in relation to Mount Albion Cemetery.
352. (Assembly, 218.) An act to amend an act entitled "An act to amend an act entitled 'An act to amend and consolidate the several acts relative to the village of Ballston Spa,' passed April 12th, 1855, as amended by an act to amend an act entitled 'An act to amend and consolidate the several acts relative to the village of Ballston Spa,' passed May 9th, 1868, and for the purpose of securing an additional supply of water for the use of said village," passed May 9th, 1872.
353. An act to authorize the alms-house commissioners of the city of Poughkeepsie to build an addition to their alms-house building, and to raise the money therefor.
354. An act to incorporate the Western New York Agricultural Mechanical and Driving Park Association of Rochester.
355. An act to regulate, grade, drain and otherwise improve Warren and Walnut streets in the town of West Farms, Westchester county.

G. O.

356. An act to authorize the board of supervisors of the county of Kings to borrow money for the completion of the contracts for erecting a female prison, and for heating the same and the penitentiary of said county.
357. (Assembly, 157.) An act to enable the electors of any town in this State, having two or more election districts, to hold their town elections in the separate election districts thereof.
358. (Assembly, 161.) An act to amend an act entitled "An act to provide for the improvement of Newtown creek, between Maspeth avenue and Metropolitan avenue," passed April 21, 1871.
359. (Assembly, 331.) An act to amend "An act to authorize the lighting of public streets and avenues in the town of Fishkill, in the county of Dutchess," passed April 23, 1872.
360. (Assembly, 159.) An act authorizing the supervisor of the town of Johnsburgh, in the county of Warren, to sell and convey, by deed, a lot of land known as the town poor lot.
361. (Assembly, 187.) An act to amend an act entitled "An act to incorporate the Eighth Ward Savings Bank of the city of New York," passed March 22, 1871.
362. (Assembly, 188.) An act to incorporate the Union Savings Bank of Saratoga Springs.
363. (Assembly, 160.) An act to renew the charter of the State road from the Orange turnpike to Nyack, in the county of Rockland, as passed on the twentieth day of April, 1830, renewed June 18, 1853.
364. (Assembly, 69.) An act relative to widening, straightening, opening and grading of One Hundred and Sixty-seventh street, in the town of Morrisania, in the county of Westchester.
365. (Assembly, 295.) An act to legalize the adoption of Ella Deming, a child of George W. Deming, as daughter of Ann Deming of Edmeston, in the county of Otsego.
366. An act requiring county clerks to transmit to the Secretary of State certified copies of the official county canvass.
367. An act to amend section 19 of chapter 570 of the Laws of 1872, entitled "An act to ascertain by proper proofs the

G. O.

citizens who shall be entitled to the right of suffrage in the State of New York, except in the city and county of New York and the city of Brooklyn, and to repeal chapter 572 of the Laws of 1871, entitled 'An act to amend an act entitled "An act in relation to elections in the city and county of New York."'"

368. (Assembly, 186.) An act to incorporate the Gloversville Water-works Company.
369. (Assembly, 257.) An act to provide for paying the floating debt of the village of Saratoga Springs.
370. (Assembly, 258.) An act to amend an act entitled "An act to amend the charter of the village of Little Falls."
371. (Assembly, 207.) An act to amend section 4, of title 7, of an act entitled "An act to amend and consolidate the several acts in relation to the charter of the village of Penn Yan."
372. (Assembly, 171.) An act to revise and amend an act entitled "An act to incorporate the village of Port Jervis," passed March 30th, 1866, and all acts relating thereto.
373. (Assembly, 252.) An act to grant certain additional powers to the trustees of the village of North Tonawanda.
374. (Assembly, 208.) An act to provide for the purchase of additional fire apparatus for the village of Cooperstown, and for the better equipment of the fire department for said village.
375. An act to authorize the appointment, by the Governor, of three commissioners to examine the prisons of the city of New York.
376. An act to provide for the laying out and opening of a public highway in the towns of North Hempstead and Oyster Bay, in the county of Queens.
377. An act to provide for the improvement of Park avenue, from Clinton avenue to Broadway, in the city of Brooklyn, and to repeal an act heretofore passed for the improvement of Park avenue from Clinton avenue to Broadway, and from Hudson avenue to Bridge street, in the city of Brooklyn.
378. An act supplemental to an act entitled "An act to provide for the construction of a main and lateral drain or sewer in Navy street, Johnson street and Hudson avenue, and other streets and avenues in the city of Brooklyn," passed April 6th, 1871.

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379. (Assembly, 383.) An act to amend an act entitled "An act to revise the charter of the city of Buffalo," passed April 28th, 1870.
380. (Assembly, 152.) An act to organize and establish a police for the city of Yonkers.
381. (Assembly, 163.) An act to incorporate the Cathedral of All Saints, in the city and diocese of Albany.
382. (Assembly, 202.) An act to reorganize the local government of the city of New York.
383. An act to authorize the New York Protestant Episcopal Public school to sell a portion of their real estate.
384. An act in relation to the improvement of the Racket river and of the hydraulic power thereon, and to check freshets therein.
385. An act authorizing the sale of the State armories at Westport, Ogdensburgh, Dunkirk, Canandaigua, Corning and Schoharie, and the armory lot at Malone.
386. An act to amend "An act to incorporate the New York and Queens County Bridge Company, for the purpose of constructing and maintaining a bridge over the East river, between the city of New York and the county of Queens," passed June 8th, 1872.
387. (Assembly, 150.) An act in relation to the Port Richmond and Bergen Point Ferry Company.

STATE OF NEW YORK.

No. 64.

IN SENATE,

March 21, 1873.

COMMUNICATION

FROM THE CANAL COMMISSIONERS IN REPLY TO A
RESOLUTION OF THE SENATE RELATIVE TO THE
REMOVAL OF THE OBSTRUCTIONS IN THE ERIE,
OSWEGO, CAYUGA AND SENECA CANALS, SO AS
TO HAVE SEVEN FEET DEPTH OF WATER.

STATE OF NEW YORK,
CANAL COMMISSIONERS' OFFICE,
ALBANY, *March 19, 1873.* }

To the Honorable the Senate of the State of New York :

The Canal Commissioners in reply to the following resolution :

"STATE OF NEW YORK—IN SENATE,
"ALBANY, *March 11, 1873.* }

" *Whereas*, it is alleged that there are in the canals of this State deposits of mud and other obstructions to their proper navigation, and that the Erie, Oswego and Cayuga and Seneca canals are not of the depth required by law ; therefore

" *Resolved*, That the Canal Commissioners be, and they are hereby, requested to report to this Senate without delay what legislation, if any, is needed to accomplish the removal of such deposit and obstructions, to the end that the Erie, Oswego and Cayuga and Seneca canals shall have seven feet depth of water.

" By order of the Senate.

" CHARLES R. DAYTON, *Clerk.*"

beg leave to report: That the Eastern and Middle Division of the Erie canal were constructed with wall benches, giving a bottom width between the slopes of forty-two feet; that the Western Division of said canal was constructed mainly without wall benches, and has a bottom width between the slopes of fifty-two and one-half feet to fifty-six and one-half feet, dependent upon the width of canal at surface of water; that a large portion of said benches on the Eastern and Middle Divisions have been removed, and all on the Western Division have been or will be removed previous to the opening of navigation; that there are thirty-five miles on the towing path and forty-four miles on the berme side of the Middle and Eastern Divisions yet to be removed. These wall benches, and the narrowness of the canal in consequence thereof, are deemed the most serious obstructions to navigation, and should be removed as soon as means can be provided for that purpose, but the commissioners do not understand that your resolution has particular reference to these, but to such other obstructions as high bottom, or where in construction it was not reduced to established grade. There are cases, however, where it would be beneficial to navigation to reduce the bottom below such grade, especially at the end of descending levels, and for a greater or less distance, dependent upon the length of each of said levels.

There are some places on the canals in question which were not reduced to the established grade in construction, and which should be so reduced to afford the seven feet of water over such places. There are also more or less deposits on the sides of the central part of the channel, varying in cross sections from nine to twenty-seven square feet. The channel in which the boat is run is from twenty to thirty-five feet wide, varying between these points as the width of the canal varies, and which width, as a general thing, is at and below grade, and will afford seven feet depth of water at all times when the surface of water is maintained at the height contemplated by the plan of construction. The deposits in the channel, outside of this, are in the angles and lap on the walls, and are, in sectional area, about as above stated. The reduction of sectional area of channel, consequent to such deposits alone, is comparatively small, and does not materially increase the traction of boats. It has been customary, during spring repairs, to remove all bars and extra accumulations of the kind to such extent as the limited time and means at hand would permit. While the sectional area of such

deposits is small, it aggregates quite a large amount when extended over the whole length of the canals embraced in your resolution, and would probably require an expenditure to remove all such deposits above grade for the whole bottom width of said canals, including the depression of the ends of descending levels below such grade, as before stated, of \$500,000.

The Hon. Wm. B. Taylor, State Engineer and Surveyor, in his annual report to the present Legislature, says :

“The following statement shows the amount and extent of bench walls now under contract, together with those remaining in the enlarged Erie canal, for the removal of which no provision has been made :

EASTERN DIVISION.		Miles on tow- path side.	Miles on berme side.
From lock No. 2 to lower Mohawk aqueduct ..		*3.98	3.29
From lock No. 2 to lower Mohawk aqueduct ..		.....	*3.56
From lower Mohawk aqueduct to lock No. 20.		*2.27	.....
From lock No. 20 to lock No. 31		4.25	*.25
From lock No. 20 to lock No. 31.....		.....	4.00
From lock No. 31 to lock No. 36.....		18.00	18.00
From lock No. 36 to lock No. 45.....		*1.00	*.30
From lock No. 45 to lock No. 46.....		4.12	4.44
From lock No. 45 to lock No. 46.....		*1.58	*.95
On the long level at Rome		1.50	1.50
		-----	-----
Amount not under contract		27.87	31.23
Amount under contract		8.83	5.06
		=====	=====
MIDDLE DIVISION.			
Jordan level		4.79	11.19
Syracuse level.....		1.14	1.82
Long level .....		.92	.....
		-----	-----
Total		6.85	13.01
		=====	=====

“On the Western Division, the remaining bench walls amount to only 91.100 of a mile in length. The work is under contract, and can be completed by the opening of the canal next spring, provided an additional appropriation of \$10,000 shall be made at the coming session of the Legislature.

I desire to invite especial attention to these impediments, and urge liberal appropriations for their removal. In my judgment, all expenditures devoted to the improvement of the prism of the canal are the most judicious that could be made, and from which naviga-

* Under contract.

tion would receive the greatest benefit. An examination of the foregoing statement will show that the larger portion of the bench wall yet remaining in the canal is located on the Eastern Division, east of the city of Utica, and includes that section of the canal approaching tide-water which should necessarily be most free from obstructions. The prism of the canal between the city of Utica and lock No. 45, at Frankfort, is in a very bad condition in consequence of the obstruction caused by the benches. No portion of the canal on this division requires improving as much, and immediate steps should be taken to remove the benches as rapidly as possible.

The Commissioners are of opinion that the removal of the remaining wall-benches is the first in importance to an improved navigation. Second, the reducing of certain original high places (not numerous), so as to afford seven feet depth of water over the same. Third, depressing certain portions of the ends of descending levels below established grade, to facilitate navigation and prevent delays from grounding in case of a depression of the ends of said levels; and, fourth, the removal of accumulations or deposits above grade in the angles of prism on each side of the channel.

The first and third are extraordinary repairs, and can be provided for only by an appropriation, based on a tax levy, for that purpose. The means for doing the second and fourth may be appropriated from the canal revenues.

The amount usually appropriated from the canal revenues is too small to warrant much of it being expended for cleaning out the canals, beyond what can be done during spring repairs; and to enable such cleaning out to be done over the whole bottom width, as above contemplated, will require a systematic effort for its accomplishment, and should it be deemed important, in view of all matters connected with our canals, that it should be entered upon at once, the Commissioners are of opinion that a special appropriation from the canal revenues of one-half the sum, or \$250,000, should be made by the present Legislature, and the balance of the amount required, by the succeeding Legislature. And, in order that it may be done in the shortest time and at the least expense, would also recommend that the Commissioners be authorized to let it by contract, or do the same by superintendents of repairs; if let by contract, to be in sections of such length as they shall deem advisable; and that the law authorizing the same have a provision enabling the Commissioners to close said canals on the 25th day of November, in the present and follow-

ing year, and not open them for navigation, in the next and succeeding years, until the 15th day of May of those years, that being about the length of time, it is anticipated, which will be required to fully complete such work.

It is likewise proper to add that on the Cayuga and Seneca canal the draft of boats was last year reduced by the Canal Board to four feet and nine inches at the opening of navigation. This action was rendered necessary by the unprecedented condition of Seneca lake, that body of water being more than six feet below high-water mark. The canal and river, from Geneva to Waterloo, being on a level with the lake, the depth of water in the former was thus very largely reduced. Much difficulty was also experienced on the Seneca Falls level, which seems never to have been excavated to the required depth. During the latter portion of the season the lake was somewhat higher, but at no time could boats be floated drawing six feet of water. As the same condition of the lake may recur in this or any future season, it would, in the judgment of the Commissioners, be judicious to make a special appropriation of \$50,000, as recommended by the Commissioner in charge in his budget for the Middle Division, which sum will be sufficient, it is presumed, to perform all necessary dredging and rebuild the dam at Waterloo.

Respectfully submitted.

JOHN D. FAY.
A. BARKLEY.
R. W. STROUD.

STATE OF NEW YORK.

No. 65.

IN SENATE,

March 21, 1873.

REPORT

OF THE STATE OF THE NEW YORK HOSPITAL AND
BLOOMINGDALE ASYLUM, FOR THE YEAR 1872.

NEW YORK HOSPITAL,
OFFICE No. 13 WEST ELEVENTH ST.,
NEW YORK, *March 20, 1873.* }

HON. JOHN C. ROBINSON,

Lieutenant-Governor of the State of New York :

SIR.—I have the honor to inclose, herewith, the annual report of the Society of the New York Hospital to the Legislature of the State of New York.

Respectfully yours,

JACOB MATHEWS,
Clerk.

GOVERNORS.

John C. Green, President; Robert Lenox Kennedy, Vice-President; William Dennistoun, Treasurer; David Colden Murray, Secretary; Thomas Hall Faile, Frederick A. Conkling, Nathaniel P. Bailey, Otis D. Swan, James W. Beekman, James Boorman Johnston, Samuel Willets, James M. Brown, Sheppard Gandy, Robert J. Livingston, Jackson S. Schultz, George Cabot Ward, William B. Hoffman, Edward S. Jaffray, Jonathan Thorne, George Talbot Olyphant, George Earle Williams, William H. Macy, James H. Banker, Merrit Trimble, two vacancies.

PHYSICIANS.

Attending Physicians—Thomas F. Cock, M. D.; William H. Draper, M. D.; Gouverneur M. Smith, M. D.; Charles E. Hackley, M. D.; James W. McLane, M. D.; Woolsey Johnson, M. D.

SURGEONS.

Consulting Surgeons—Alfred C. Post, M. D.; William H. Van Buren, M. D.; Willard Parker, M. D.

Attending Surgeons—Gurdon Buck, M. D.; Thomas M. Markoe, M. D.; George A. Peters, M. D.; Henry B. Sands, M. D.; Charles M. Allin, M. D.; Ernst Krackowizer, M. D.

Curator.—Christopher M. Bell, M. D.

Clinical Registrar.—David Magie, M. D.

Librarian.—John L. Vandervoort, M. D.

Clerk.—Jacob Mathews.

REPORT.

The Governors of the Society of the New York Hospital respectfully present their annual report of the state of the establishments under their charge.

The following abstract statement shows the receipts and expenditures from all sources and on all accounts, under their respective heads, during the year 1872.

The receipts and payments of the institution, from all sources, during the year 1872, have been :

Balance in the Bank of Commerce to the credit of the hospital, January 1st, 1872.....	\$11,549 23
Balance in the Bank of America to the credit of the asylum, January 1st, 1872.....	6,613 75
Balance in the hands of the warden of the asylum, January 1st, 1872.....	282 84
Received on account of the Bloomingdale Asylum....	145,179 70
Received for articles sold..	1,196 00
Received membership subscriptions.....	40 00
Received library subscriptions.....	35 00
Received ground rents of property on Broadway, Worth, Church and Duane streets.....	128,425 33
Received ground rents of Ninth avenue property....	3,000 00
Received loans returned.....	330,000 00
Received interest on loans.....	11,695 85

Received interest on ground rents.....	\$193 38
Received interest on E. Lord's bond.....	17 36
Received interest on Wm. Burdon's bond.....	450 00
Received interest on P. Kean's bond.....	44 24
Received interest on U. S. bonds.....	50 73
Received bequests of Sarah and Elizabeth Wooley....	1,623 71
Received award for opening One Hundred and Thirteenth street.....	1,404 00
	<hr/>
	\$611,801 12
	<hr/>

Paid on account of support of Bloomingdale Asylum..	\$110,985 30
Paid general expenses of the hospital.....	6,002 72
Paid insurance on hospital and library.....	217 84
Paid insurance on asylum.....	518 09
Paid rent of house 13 West Eleventh street.....	4,500 00
Paid for map of property at Bloomingdale.....	150 00
Paid assessments for widening One Hundred and Twenty-seventh and One Hundred and Twenty-second streets, and opening One Hundred and Twenty-third street	6,417 75
Paid assessment for opening One Hundred and Thirteenth street	2,221 80
Paid for legal services in the matter of the Riverside park	1,615 80
Paid for additional buildings at Bloomingdale.....	22,866 91
Paid architects on account of White Plains buildings..	6,625 00
Paid interest on mortgages on farm at White Plains..	11,138 83
Paid mortgages on farm at White plains.....	130,000 00
Paid for working the farm at White Plains.....	2,055 23
Paid for legal expenses in the Woolley bequests.....	500 00
Paid for advertising, leases, etc.....	994 48
Paid for model for pathological cabinet.....	75 00
Temporary loans.	290,000 00
Balance in the Bank of Commerce to the credit of the hospital, December 31st, 1872	3,825 38
Balance in the Bank of America to the credit of the asylum, December 31st, 1872.....	11,030 97
Balance in the hands of the warden of the asylum, December 31st, 1872	60 02
	<hr/>
	\$611,801 12
	<hr/>

The financial condition of this corporation on the 31st December, 1872, as compared with that on the 31st December, 1871, stands thus:

On the 31st December, 1871:

Temporary loans	\$120,000 00
Balance in Bank of Commerce to the credit of the hospital	11,549 23
Balance in Bank of America to the credit of the asylum,	6,613 75
Balance in hand of the warden of the asylum	282 84
	<hr/>
	\$138,445 82
Deduct debt on mortgage.....	\$60,000 00
“ “ “	70,000 00
	<hr/>
	130,000 00
	<hr/>
	\$8,445 82
	<hr/> <hr/>

On the 31st December, 1872:

Temporary loans	\$80,000 00
Balance in the Bank of Commerce to the credit of the hospital	3,825 38
Balance in the Bank of America to the credit of the asylum.....	11,030 97
Balance in hands of the warden of the asylum.....	60 02
	<hr/>
	\$94,916 37
	<hr/> <hr/>

Annexed to this report is the report of the committee on accounts, showing the several items of receipts and disbursements of the hospital and asylum for the year 1872 (see page 18).

Previous reports have set forth the financial reasons for the suspension of hospital service in the lower part of the city, and the leasing of the hospital grounds. The repetition of the statements in this behalf, heretofore made, will tend to illustrate the expediency of the policy adopted by this board, not only in regard to the suspension of hospital service on the old site, but as well to the re-establishment of hospital operations elsewhere.

During the present century the New York Hospital has been sustained by the receipt of funds from three sources:

First.—By board money from patients who could afford to pay.

Second.—By annual appropriations by the State Legislature, in consideration of the society caring for the sick poor and insane sent from different parts of the State; and

Third.—By donations and legacies from friends of the institution.

The income from board of patients continued to be a source of revenue until the hospital service was discontinued in the winter of 1869–70; but it was not at all adequate to its support.

The Legislature ceased to aid the institution quite a number of years prior to the closing of the hospital, and the friends of the hospital, with rare exceptions, and the public also in like manner, declined to contribute to its support, because the real estate of the society used for hospital purposes had become very valuable for business uses, for which it could be sold or leased, and thus furnish an ample fund for the erection and maintenance of a hospital elsewhere.

The expenses of the hospital for ten years prior to its close averaged over \$22,000 per annum more than the receipts, and as a consequence a mortgage indebtedness of two hundred thousand dollars existed upon the property at the commencement of the year 1869, when it was determined to suspend the hospital services for want of means, and to prevent a much larger indebtedness to accumulate against the institution without any ability to liquidate the same.

During the past four years the resources of the society have been as follows :

Cash on hand January 1, 1869, about.....	\$18,000 00
Awards for lands taken for streets, etc.....	3,251 00
Rent for a part of the hospital grounds, leased for business uses	426,317 00
Ground rent of Ninth avenue property, <i>given in trust</i> , the income to be applied to the support and increase of the Pathological cabinet.....	8,000 00
Sale of North House Hospital and steam boilers	5,050 00
Legacies, donations, etc., received since January 1, 1869	56,050 00
Interest received on temporary loans	15,044 10
	<hr/>
	\$531,712 10

Liabilities existing and incurred since January 1, 1869,
are :

Mortgage indebtedness	\$200,000 00
Assessments for parks, avenues and streets.....	70,000 00
Cost of removing hospital buildings, opening, sewerage and paving new street	22,600 00
Cost of additional lands at White Plains; quarrying upon and maintaining farm at White Plains, and for architect's survey and plans for buildings thereon,	38,000 00
Counsel fees and legal expenses in leas- ing land	4,325 00
Repairs and additions to buildings of the Bloomingdale Asylum.....	22,900 00
Rent of house 13 West 11th street	13,500 00

Expenditures over receipts of hospital from 1868 to 1869-70	\$26,700 00	.
Support of library, office and cabinet..	13,000 00	.
Interest paid on mortgages.....	39,200 00	.
	<hr/>	\$450,225 00
		<hr/>
		<u>\$81,487 10</u>

The balance of cash on hand will be applied towards the payment of the following unpaid accounts :

Assessment for Riverside park in excess of awards for land taken for a new avenue	\$59,400 00	.
Opening public drive and interest thereon	16,000 00	.
Taxes for three years and interest thereon	27,600 00	.
	<hr/>	\$103,000 00
		<hr/>

It will be seen from the foregoing statement that if the governors had continued the hospital services until the present time, its financial condition would have been about as follows :

Liabilities existing January 1, 1869, and contracted since, about	\$553,000 00
Interest accumulating thereon during four years, about	87,000 00
Average deficiency in revenue during four years	100,000 00
	<hr/>
Indebtedness of about	<u>\$740,000 00</u>

The *Hospital Library and Pathological Cabinet* are in a flourishing condition. The library contains 9,074 volumes, 408 of which have been added during the past year.

Since the date of the last annual report, this society has lost, by death, George T. Trimble and John David Wolfe, the former president and the latter vice-president of the board of governors at the time of their decease. Their faithful services and active sympathy for this and other prominent charitable institutions, and their social virtues, caused their death to be sincerely and widely deplored. Of the board of physicians and surgeons, Henry D. Buckley, M. D., one of the attending physicians of the hospital since June, 1848, died January 4, 1872. He was distinguished for his professional acquirements and exemplary personal character. The annual report of the physician to the Bloomingdale Asylum pays a becoming

tribute to the memory of Edward E. Porter, M. D., assistant physician to the asylum, who died on the 26th of October, 1872.

BLOOMINGDALE ASYLUM.

The number of insane patients in the Bloomingdale Asylum for the Insane on the 1st day of January, 1872, was 175; and there have been admitted during the year 124, making a total of 299 patients during the past year.

Of the number under treatment, 124 were males and 175 females.

Of the cases discharged during the year, there were :

Recovered	46
Improved.....	37
Not improved.....	25
Died	21
Remaining 31st December, 1872.....	170

Annexed are the annual report of the physician-in-chief of the asylum and statements showing the general disbursements of the asylum for the current year ending December 31, 1872, and a statistical history of the asylum since it was established. (See pages 8, 16 and 17.)

The charges of mismanagement in this institution, referred to at length in the annual report of the physician to the asylum, were made the subject of investigation by the board immediately upon their being made public. A large committee of the board was appointed to inquire as to the truth of the charges, and the result of their action was to satisfy the board that they were unfounded, and that neither the character of the institution nor the integrity of its management were unworthy of its former honorable history, or the confidence of its governors or the public.

Subsequently these charges were made the subject of investigation by a commission appointed by the Governor of the State, and the board of governors, as well as the asylum committee, extended to the gentlemen of the commission every facility for prompt and thorough examination. This board feels confident that the report of the commission cannot seriously disparage an institution which has ever been conducted upon principles of enlightened humanity.

JOHN C. GREEN,
President.
D. COLDEN MURRAY,
Secretary.

NEW YORK, *March*, 1873.

BLOOMINGDALE ASYLUM REPORT.

Asylum Committee.—James H. Banker, 48 Wall street; Geo. Cabot Ward, 52 Wall street; D. Colden Murray, 62 South street; William H. Macy, 74 Wall street; Otis D. Swan, 48 Wall street; Robert J. Livingston, 10 East Forty-eighth street.

Officers.—D. Tilden Brown, M. D., physician; Dwight R. Burrell, M. D., assistant physician; Wm. Gordon Verplanck, warden; Elizabeth L. Clapp, matron; Rev. Thomas M. Peters, chaplain.

PHYSICIAN'S ANNUAL REPORT FOR 1872.

To the Board of Governors of the New York Hospital:

GENTLEMEN.—In accordance with your regulations, the general operations of the Blomingdale Asylum for the Insane, for the year 1872, are presented in the following table:

	Males.	Females.	Total.
On January 1st, 1872, the number of patients in the asylum was.....	73	102	175
Admitted since, to January, 1873.....	51	73	124
	<u>124</u>	<u>175</u>	<u>299</u>
Total number during 1872			
Of these were discharged as recovered	16	30	46
Improved	12	25	37
Not improved, including two not insane.....	14	11	25
Died	9	12	21
	<u>51</u>	<u>78</u>	<u>129</u>
Total number discharged and died.....			
Remaining December 31st, 1872.....	73	97	170
Average number resident during 1872.....	73	103	176
	<u>73</u>	<u>103</u>	<u>176</u>

The deaths were attributed as follows: six to exhaustion from acute mania; three to chronic disease of the brain; two to general paralysis; three to pulmonary consumption; and one to each of the following conditions: acute inflammation of the brain, apoplexy, valvular disease of the heart, disease of the bladder, malarial fever, gradual decline, and infirmities of age. Four patients who died were between 60 and 70 years of age, one over 70 and one over 80.

One died within two days of admission, another on the fourth day and six within fifteen days. One gentleman had been more than

fifty-three years under the care of the asylum, having entered it when the institution stood on the New York Hospital grounds in the city. He was the last survivor of those who were removed here at the opening of the building in 1821. He was educated for the profession of medicine, and retained a remarkable recollection of the prominent medical men and professional incidents of his early life. Though so long isolated from the outer world, he took an intelligent interest in public affairs and social science, as set forth in the daily journals, while in his unrippled contentment with his lot, never disturbed by the agitated elements around him, he might be regarded, if judged by stoic theories, as a perfected philosopher.

The average number of patients resident in the asylum throughout the year has fully equaled that of any previous year, and exceeded that of all but one.

The usual measure of annual improvements has been somewhat enlarged, and the construction of a new billiard room and dining rooms in the male department of the main building, and of a new bowling alley, and an attractive garden pavilion for ladies, attest continued attention to new devices for the comfort or amusement of the patients.

The sad duty presents itself of recording, in the annual history of the institution, an event already reported to your board at the time of its occurrence, namely, the death, by pulmonary consumption, of Edward E. Porter, M. D., late assistant physician of the asylum. Dr. Porter was appointed to the office in 1867, and during the five years of his incumbency he performed the duties with exemplary fidelity and tact. By his sympathetic disposition, his patient consideration of the infirmities and caprices of those under his special charge, and by his readiness to surrender his own time and convenience for the benefit of others, he merited and won the affection, not only of his associate officers, but of numerous patients in whose restoration he had been instrumental. His memory will be cherished here as that of one whose assiduous devotion to his chosen work of life, and his persistent disregard of the recreation which its peculiar pressure demands, were most creditable to his conscientious appreciation of duty, though not commendable as an example to others in similar positions. Dr. Porter was born in Skaneateles, N. Y., Sept. 25th, 1842, and died October 26th, 1872, aged 30 years. His father and two of his brothers were physicians, both the latter having been, like himself, medical officers of institutions for the insane.

During the past year the institution has been the subject of unusual public discussion, and of newspaper criticism, by reason of law proceedings arising under writs of *habeas corpus*, and also from willful misrepresentation by an unrecovered patient, conjointly with a discharged attendant. In both cases of *habeas corpus* proceedings the decision of the court justified the officers of the asylum, and the friends of the parties in placing them here. Pending the progress of the judicial investigation, which lasted several weeks, numerous newspaper editorials unfavorable to the management of the institution induced more or less uneasiness in the public mind respecting the possible confinement of sane persons under the charge of insanity, and also concerning the care of the insane themselves. Whatever may have been the influence of these criticisms among those who fortunately have, as yet, had no personal experience of mental disease in their families, any disturbing effect upon those having relatives in this asylum was apparent in only a single instance. A lady who had been here but a short time, was removed from the asylum, but was returned to it on the following day, at her own request, with evident relief to the relative, who acted from laudable motives, both in removing and returning the patient.

Another result of this sensational excitement was the appointment by Governor Hoffman of a commission composed of three eminent citizens to investigate the condition and management of the asylum, on the alleged ground that its governors and physician had opposed legislation intended to establish State supervision of all institutions for the insane. This supposition on the part of the Governor was without foundation, no objection whatever having been made to such measure by any one connected with this institution. His excellency's misapprehension arose from objections made to quite a different project, tending to obstruct measures for the early treatment of mental diseases, and therefore injurious alike to the patients, to their families and to the community. Such projects invariably originate in the impression that the present statutory requirements for the admission of patients into hospitals for the insane are inadequate to prevent the confinement of sane persons, while in fact they are much more rigid in this State than in many others. Thus in New York a warrant of commitment issued by a magistrate is required, while in most of the neighboring States the medical certificate of one or two physicians, signed and acknowledged before a magistrate, is alone requisite.

That an ingenious and enterprising young newspaper reporter, by connivance with other parties, should succeed in simulating mental derangement so far as to convince two respectable physicians, that a man who behaved like a lunatic for two days and nights continuously, may appropriately be lodged in a lunatic asylum, does not prove the insufficiency of the present law regulating the isolation of the insane. Nor is it shown that the law is easily liable to abuse, for even in States where no law whatever exists on the subject, no injustice arises. That improper confinement of sane or insane persons in lunatic asylums is of exceedingly rare occurrence in any country is proven by the paucity of suits at law for damages arising from such confinement, actions of this nature being almost unheard of, while applications are numerous for the discharge of actually insane persons on writs of *habeas corpus*.

Dr. Ray, the most eminent American writer on insanity, says, on this subject, in an article on the confinement of the insane: "The alleged cases of wrongful imprisonment, when impartially investigated, do not sustain the complaint. The prevalent notion on this subject has been derived in some measure from novels and periodicals, where cases of the kind, by the license allowed to such writers, have been used to heighten the interest of the story. It only indicates the change in modern civilization, whereby much of the old machinery of the poet and story-teller has become effete, and thus it happens that the castle and convent and poor-debtors' prison, as places for confining luckless heroes and heroines, have given way to lunatic asylums. They have many qualifications for this purpose. Their walls are strong, their windows barred, their doors locked, and though utterly devoid of cells and dungeons, it required no great stretch of the imagination to conjure them up. Thus it is not strange that readers who readily believe whatever they find in print should get the impression that cases so represented are, if not literal fact, founded in fact and express an actual reality."—*American Law Review*, Jan., 1869.

It is sometimes contended that even the insane should not be restrained in hospitals or asylums unless they show a disposition to do violence to themselves or others, or to property. But who shall decide whether such danger exists, if not the relatives and medical attendants of the patient? On whom so properly as these may rest the responsibility of judging whether the patient be harmless or dangerous, whether his expressions and conduct justify apprehen-

sions of suicidal or homicidal tendencies, or whether the delusive distrust of and hostility towards his own kindred may not prompt him to acts of fatal violence? Tragedies arising from partial insanity are constantly brought to public notice by the press, startling one by their atrocity and extent, or by their secrecy and persistence, as in instances of repeated, and apparently motiveless, poisonings, or of ingenious and merciless torture of unoffending children. Those who commit such acts often show remarkable talent for devising and executing plans which have no sounder basis than an insane delusion; yet people otherwise intelligent, but unfamiliar with the change wrought by insanity in the moral perceptions as well as in the reasoning faculties, often assume that partial insanity is as distinct in character as in degree from general insanity, and that until the power of correct reasoning is entirely lost there can be no justification for confinement in a hospital. Dr. Ray says: "This great mistake respecting the extent of the morbid influence exerted by disease, is one which the world is reluctant to correct. It meets our notice on the bench and at the bar, in the circles of the refined and educated, as well as of the coarse and ignorant. It is made an occasion of hardship and wrong to the unfortunate and helpless, and blocks the way to every improvement in the administration of the law."

Yet in other forms of human malady the right to restrict liberty and control the will of the patient, or even of healthy persons who have associated with the sick, is asserted and exercised without scruple. American citizens returning from abroad in perfect health are liable to detention at quarantine at the will of a health officer, because a fellow-passenger may have died of a supposed infectious disease; and but a few days ago the newspapers stated that an eminent judge of the highest court of a State conspicuous for the intellectual and educational supremacy of its people, had been taken from the hotel of its chief city to the common pest-house, because he had been attacked by small-pox. In cases of this kind the question of "danger to others" is determined very summarily by those in authority, without much consideration for the preferences of the patient or those of his relatives. Yet the question is no more strictly one of medical science than is presented in cases of mental disease. So, too, "men are arrested, kept in durance, charged with a criminal offense, and yet found on trial to be innocent of the charge, the victims perhaps of conspiracy or perjury. This is no rare, extra-

ordinary thing—one case in ten thousand—kindling the wrath of every newspaper writer in the land, and calling for special and summary legislation, but an every-day occurrence, exciting as little feeling as the most common operations of nature. We are told very calmly that such wrongs are part of the price we pay for public order and good government.

For several years past there has been manifest at each session of the State Legislature a disposition to amend the law relating to the isolation of the insane. This disposition is founded upon misconception, alike of the nature of mental diseases and of the actual operations of the present statutes. Numerous propositions have been made, most of them arising from groundless suspicion of injustice in some particular case; or from an ill defined apprehension that medical men, as a class, are not to be trusted with the professional discretion now vested in them by law; or again, from distrust of the competency, caution, or integrity of the magistrates empowered to grant warrants of commitments. For one or all of these reasons it seems to be assumed by a considerable number of unnecessarily alarmed philanthropists that "*something* must be done" by the Legislature to check some actual or possible wrong; but it does not seem to have occurred to those who have shown the most earnestness in the matter that the best welfare of the insane themselves is the primary interest involved, and that any provision of law which obstructs the early treatment of their disease by the best known methods, sacrifices their good to an imaginary safeguard for people who are in no real danger whatever. I believe that any competent and fair-minded inquirer who would give a few hours to the examination of the lunacy laws of half a dozen different States, and avail himself of the published statements of those familiar with their operations, would freely admit that the law of New York is not only more stringent now than that of any neighboring State, but that it is so much the less favorable to the cure and prevention of insanity among its citizens, and, for the same reason, more conducive to the increase of insane pauperism.

The interpretation of the law by the committing magistrates is far from uniform, and in some instances, as where the presence of the patient in the court-room is exacted, it is as inhumane as it is unsound. Some police justices refuse to grant commitments at all unless the patient is to be placed in a State or county asylum, a limitation which the law does not sanction, and which is unreason-

ably annoying to the deposing physicians and to the families of the patients.

In direct contrast to this is the opinion and practice of a magistrate of long and large experience, who informs me that he regards the sole duty imposed upon him by the statute, to the exercise of a sound discretion in judging of the respectability of the attesting physicians, as well as of the consistency and probable truth of their statements, leaving the selection of the institution in which the patient is to be placed to the decision of the relatives. This construction of the law must be regarded by unbiassed judges as equally creditable to the magistrate, and just to all parties interested.

The law of Rhode Island, drafted by the able expert from whose writings I have drawn so largely in this communication, contains this section as its principal clause: "Insane persons may be placed in a hospital for the insane by their legal guardians, or by their relatives or friends in case they have no guardians, but never without the certificate of one or more responsible physicians, after a personal examination made within one week of the date thereof; and this certificate to be duly acknowledged before some magistrate or judicial officer, who shall certify to the genuineness of the signature and the respectability of the signer."

In the event of the dissatisfaction of any citizen at the confinement of any person under this law, any high judicial officer of the State is authorized, on application being made to him, to appoint a commission of not less than three persons, including a lawyer and a physician, whose report upon the question raised shall virtually decide it. "Under such provisions the insane may be promptly, quietly, and, with a few possible exceptions, rightfully placed by their friends in some hospital for the insane."

The foregoing remarks upon a matter which has been most forcibly pressed upon the consideration of the governors and officers of the asylum during the past year, may have been unduly extended, but this may be atoned for by an apposite conclusion in the further language of Dr. Ray:

"Justice to all parties requires some such legislation as we have indicated. That it would prevent all popular clamor we do not believe. Inasmuch as the notion in question — that sane people are shut up on pretense of insanity — has little or no foundation in reason, it could hardly be expected that it would be amenable to reason. As long as men are swift to believe any plausible story of

wrong-doing, without inquiry or hesitation ; as long as newspapers can find in such stories the materials of a great sensation ; as long as there is a prevalent belief that no one is insane who is not furiously mad, — so long will the confinement of the insane, in establishments expressly designed for the purpose, be viewed with feelings of distrust, whatever may be the legal provisions by which it is regulated.”

Respectfully submitted,

D. T. BROWN.

BLOOMINGDALE ASYLUM, *Dec.* 31, 1872.

General Table of Statistics, compiled from the Annual Reports of the Asylum.

YEAR.	Admitted.	Whole number during the year.	Whole number discharged and died.	Recovered.	Improved.	Not improved.	Died.	Remaining at end of year.	Average number.
1821	123	123	40	19	7	12	2	83	74
1822	102	185	94	48	23	18	5	91	88
1823	181	222	118	55	33	20	5	100	101
1824	121	230	116	48	27	30	11	114	116
1825	156	270	179	71	42	63	3	91	119
1826	142	233	142	69	18	44	11	91	88
1827	134	225	140	67	26	38	9	85	90
1828	134	219	130	59	29	29	13	80	90
1829	91	180	97	49	19	20	9	83	83
1830	134	217	125	58	41	21	7	92	89
1831	151	243	145	76	17	23	19	98	97
1832	118	216	136	44	31	46	15	80	96
1833	138	218	98	58	10	20	10	120	107
1834	102	222	119	51	16	38	14	103	120
1835	138	241	97	58	11	15	13	144	136
1836	121	265	123	66	26	17	14	142	153
1837	112	254	109	50	12	34	13	145	145
1838	122	267	129	73	22	18	21	138	143
1839	113	251	125	68	32	11	14	126	132
1840	113	269	108	60	25	9	14	131	130
1841	102	233	100	55	14	13	18	133	130
1842	86	219	109	55	15	32	7	110	120
1843	85	195	95	49	23	9	14	100	106
1844	106	206	102	50	27	12	13	104	106
1845	138	242	125	61	32	20	12	117	119
1846	133	250	119	54	36	16	13	131	124
1847	143	274	129	58	40	18	13	145	137
1848	138	283	164	53	55	31	25	119	135
1849 *	95	214	111	44	33	13	21	103	112
1850	97	200	90	50	15	7	18	110	110
1851	95	205	83	43	20	9	11	122	114
1852	104	226	107	48	25	16	18	119	117
1853	135	254	130	49	27	32	23	124	133
1854	122	246	119	48	29	16	26	127	126
1855	107	234	107	52	13	23	19	127	127
1856	134	261	117	54	27	17	19	144	140
1857	128	272	126	49	37	25	15	146	141
1858	112	258	113	34	34	34	11	145	145
1859	138	283	131	55	32	26	18	152	152
1860	150	302	147	50	46	22	29	153	159
1861	111	266	115	42	36	18	19	151	154
1862	117	268	111	48	24	19	20	157	148
1863	115	272	130	53	47	16	14	142	151
1864	140	282	111	52	30	12	17	171	162
1865	152	323	152	63	36	22	28	171	176
1866	132	303	135	66	33	12	24	168	163
1867	144	312	151	58	43	22	28	161	172
1868	136	297	140	55	48	17	20	157	166
1869	140	297	136	51	42	16	27	161	171
1870	153	314	149	60	44	18	27	165	168
1871	141	306	131	60	30	17	24	175	175
1872	124	299	129	46	37	25	21	170	176
Total.....	6,449	.....	6,279	2,813	1,497	1,136	833	...	.....

* From the year 1849 the asylum has been devoted to private patients only.

*Account of general disbursements of the Bloomingdale Asylum from
January 1st, 1872, to December 31st, 1872.*

ARTICLES OF FOOD.

Fish, oysters, clams	\$1,828 88
Beef, mutton, lamb, veal	16,377 35
Poultry	826 04
Eggs	1,111 74
Flour, meal, buckwheat, oatmeal	2,890 44
Ham, sausage, smoked beef, lard	1,435 68
Rice, barley, beans, tapioca, farina	389 97
Butter	4,848 56
Cheese	265 17
Coffee, chocolate, broma	820 25
Tea	1,450 60
Crushed sugar	734 27
Coffee sugar	1,358 46
Syrup, molasses	129 63
Fruit (green and dried)	1,917 47
Spices, salt, sweet oil	161 20
Vinegar	140 01
Vegetables	1,044 93
Milk	415 00
Ice	239 61
	<hr/>
	\$38,385 26
	<hr/> <hr/>

SUNDRIES.

Improvements	\$6,083 75
Furnace castings, pipe, etc.	1,117 91
Blacksmithing	452 18
Tin, copper, sheet-iron work	658 90
Repairs	958 58
Gas, kerosene	1,608 90
Stationery, stamps, advertising	1,451 72
Hardware, cutlery, etc	1,208 27
Plumbing	1,620 71
Medicine	1,096 65
Liquors	592 50
Soap and material	693 54
Oats, ground feed, grains	1,291 59
Dry goods	1,542 46
Lumber, lime, plaster, brick	785 63
Paints, oil, turpentine	1,295 66
Furniture	1,785 76
Crockery	440 21
Coal, charcoal	5,369 46
Hay, straw	1,368 99
Brooms, brushes, mats, pails	165 18
Water rate	75 00
Farming tools, seeds, bulbs	184 03

Carriage hire	\$449 00
Harness	292 95
Live stock	971 40
Starch, indigo	132 80
Oil-cloth, carpeting	1,198 93
Amusements	316 19
Contingencies	146 17
Wages	33,386 13
Donation	500 00
Legal services	255 00
	<hr/>
	\$69,496 15

REPORT OF THE COMMITTEE ON ACCOUNTS FOR THE YEAR 1872.

The committee appointed in obedience to the by-laws to audit the accounts of the hospital, and to make an inventory of all the real and personal estate belonging to the corporation, and a schedule of all the deeds, etc., in custody of the treasurer, and a general statement of all the accounts, report as follows :

The receipts of the Bloomingdale Asylum during the past year have been :

Board of patients	\$111,560 71
Clothing	2,871 74
Articles sold	747 25
	<hr/>
	\$115,179 70

The payments for the same period have been :

House expenses	\$73,536 70
Wages	33,386 13
Clothing	3,104 19
Repairs	958 28
	<hr/>
	110,985 30

The receipts over payments for the asylum in 1872 were, \$4,194 40

The payments for the New York Hospital in 1872 were:

General expenses	\$1,192 61
Library	1,082 23
Pathological cabinet	26 43
Salaries	3,701 45
	<hr/>
	\$6,002 72

The total expenditure of the institution for the year,
as above..... \$116,988 02
The total receipts of the institution for the same time.. 115,179 70

Excess of expenditure over receipts for the year 1872, \$1,808 32

The receipts and payments of the institution from all sources during the year 1872, have been :

Balance in the Bank of Commerce to the credit of the hospital, January 1st, 1872.....	\$11,549	23
Balance in the Bank of America to the credit of the asylum, January 1st, 1872.....	6,613	75
Balance in the hands of the warden of the asylum, January 1st, 1872.....	282	84
Received on account of the Bloomingdale Asylum....	115,179	70
Received for articles sold	1,196	00
Received membership subscriptions.....	40	00
Received library subscriptions	35	00
Received ground rents of property on Broadway, Worth, Church and Duane streets.....	128,425	33
Received ground rents of Ninth avenue property....	3,000	00
Received loans returned.. ..	330,000	00
Received interest on loans	11,695	85
Received interest on ground rents.....	193	38
Received interest on E. Lord's bond.....	17	36
Received interest on Wm. Burden's bond	450	00
Received interest on P. Kean's bond.....	44	24
Received interest on U. S. bonds.....	50	73
Received bequests of Sarah and Elizabeth Woolley...	1,623	71
Received award for opening One Hundred and Thirteenth street	1,404	00

\$611,801 12

Paid on account of support of Bloomingdale Asylum..	\$110,985	30
Paid general expenses of the hospital.....	6,002	72
Paid insurance on hospital and library.....	217	84
Paid insurance on asylum.....	518	09
Paid rent of house 13 West Eleventh street.....	4,500	00
Paid for map of property at Bloomingdale.....	150	00
Paid assessment for widening One Hundred and Twenty-seventh and One Hundred and Twenty-second streets, and opening One Hundred and Twenty-third street.....	6,417	75
Paid assessment for opening One Hundred and Thirteenth street	2,221	80
Paid for legal services in the matter of the Riverside park	1,615	80
Paid for additional buildings at Bloomingdale	22,866	91
Paid for architects on account of White Plains buildings,	6,625	00
Paid for interest on mortgages on farm at White Plains,	11,138	83
Paid mortgages on farm at White Plains.....	130,000	00
Paid for working the farm at White Plains.....	2,055	23
Paid for legal expenses in the Woolley bequests.....	500	00
Paid for advertising leases, etc.....	994	48
Paid for model for Pathological cabinet.....	75	00

Temporary loans.....	\$290,000 00
Balance in the Bank of Commerce to the credit of the hospital, December 31st, 1872	3,825 38
Balance in the Bank of America to the credit of the asylum, Decembr 31st, 1872.....	11,030 97
Balance in the hands of the warden of the asylum, December 31st, 1872	60 02
	<hr/>
	\$611,801 12
	<hr/> <hr/>

The committee have examined all the accounts presented to them and have found them correct. They are herewith presented.

For a schedule of deeds, bonds, etc., the committee beg to refer to the treasurer.

SHEPPARD GANDY,
GEORGE CABOT WARD,
JONATHAN THORNE,
Committee.

NEW YORK HOSPITAL, *January 24th*, 1873.

GENERAL EXPENSES OF THE NEW YORK HOSPITAL FOR THE YEAR 1872.

South house.....	\$209 92	
Gas	127 68	
Repairs.....	9 10	
Postage	10 05	
Stationery	65 50	
Car fares	15 90	
Wood.....	15 50	
Furniture.....	157 92	
Printing.....	207 47	
Ice	43 02	
Croton water.....	15 00	
Coal	158 13	
Sundries.....	157 42	
	<hr/>	\$1,192 61
Library		1,082 23
Pathological cabinet.....		26 43

Salaries.

Clerk	\$1,322 90	
Librarian	500 00	
Curator.....	300 00	
Watchman, south house.....	692 00	
Janitor, Eleventh-street house	600 00	
Pensioner.....	286 55	
	<hr/>	3,701 45
		<hr/>
		\$6,002 72
		<hr/> <hr/>

STATE OF NEW YORK.

No. 66.

IN SENATE,

March 26, 1873.

LIST OF GENERAL ORDERS.

G. O.

388. An act to amend an act entitled "An act to foster and develop the internal commerce of the State, by inviting and rewarding the practical and profitable introduction upon the canals of steam, caloric, electricity, or any motor other than animal power, for the propulsion of boats," passed April 28, 1871.
389. An act making further appropriations for the enlargement of the Champlain canal.
390. An act to close a portion of Bay Ridge avenue, in the town of New Utrecht, to lay out, open and grade an extension of said avenue, and to provide for certain damages caused by the grade of said avenue.
391. An act to confirm bonds issued on behalf of towns in this State to aid in the construction or completion of railroads.
392. An act to incorporate the Atlantic Guarantee and Trust Company.
393. An act in relation to the Monroe County Savings Bank.
394. (Assembly, 20.) An act to establish a receiver of taxes and to authorize the sale of lands for non-payment of taxes, and for the collection of unpaid taxes in the town of Jamaica, Queens county.

G. O.

395. An act to appropriate two thousand five hundred dollars for the removal of obstructions from, and to improve the navigation of Indian river.
396. An act in relation to taxes illegally levied and assessed upon the Buffalo Creek, Allegany and Cattaraugus Indian reservations, under the provisions of chapter 254 of the Laws of 1840, and chapter 166 of the Laws of 1841.
397. An act in relation to the salary of the assistant clerk of the third (police) judicial court of the city of New York.
398. An act to legalize the acts of Robert E. Dorchester, as notary public.
399. An act in relation to the clerks of the Marine Court of the city of New York.
400. An act granting the consent of the State of New York to the acquisition by the United States of certain lands for the purpose of the erection of government buildings at Albany and Utica, New York, and ceding jurisdiction over the same.
401. (Assembly, 181.) An act to amend an act entitled "An act to incorporate the trustees of the Masonic Hall and Asylum Fund," passed April 21, 1864.
402. (Assembly, 352.) An act to amend chapter 16 of the Laws of 1861, entitled "An act to enable the electors of the town of Poughkeepsie to vote by districts for town officers," passed February 14, 1861.
403. (Assembly, 288.) An act to provide for the protection of citizens in their civil and public rights.
- 403½. An act to amend an act entitled "An act to amend an act to incorporate the United States Loan and Security Company."
404. An act to incorporate the Kings County Trust Company.
405. An act in relation to academies and academical departments of union schools, and the distribution of public funds.
406. An act to confirm the proceedings taken by the common council of the city of Buffalo to lay out and extend Genesee street from its termination at Best street through to intersect the Buffalo and Batavia plank-road.

G. O.

407. An act further to amend an act passed April 24th, 1868, entitled "An act for the further extension of Prospect park in the city of Brooklyn."
408. (Assembly, 384.) Authorizing the comptroller of the city of Buffalo to add to the general tax rolls of the city of Buffalo certain unpaid school taxes, and to collect the same as a portion of such general tax.
409. (Assembly, 139.) An act for provide building sites for life-saving stations on the coast of Long Island, State of New York.
410. An act in relation to the State Lunatic Asylum.
411. An act to amend an act entitled "An act to amend and consolidate the several acts relating to the village of Ilion," passed March 8th, 1865.
412. An act to amend the charter of the village of Clinton.
413. An act to amend an act entitled "An act to amend the charter of the village of Ilion," passed April 7th, 1866.
414. An act in relation to the free academy of the city of Albany.
415. (Assembly, 255.) An act to amend an act entitled "An act to amend an act incorporating the village of Sing Sing, in the county of Westchester, passed April 9th, 1853, and the act supplementary thereto and amendatory thereof," passed April 18th, 1859.

STATE OF NEW YORK.

No. 67.

IN SENATE,

March 26, 1873.

COMMUNICATION

FROM THE SHERIFF OF THE CITY AND COUNTY OF
NEW YORK, RELATIVE TO THE REVENUES OF SAID
OFFICE.

SHERIFF'S OFFICE—NEW COURT HOUSE,
CITY AND COUNTY OF NEW YORK, *March 25, 1873.* }

To the Honorable the Senate :

On the 13th instant, Andrew H. Green, comptroller of the city of New York, addressed a communication to your honorable body, the concluding paragraph of which is as follows :

“ The revenues of the office of sheriff of the county of New York are very large, and I think the public interests would be subserved by the abolition of all fees on executions against the city and county.”

Justice, not so much to myself (my term of office having nearly expired) as to future incumbents of this office, demands that I should correct this loose and unwarranted statement.

Under existing laws, as they are interpreted and administered by Comptroller Green, *the gross receipts of this office do not pay its current expenses*, leaving entirely out of the question the pecuniary responsibilities resting upon the sheriff, which may be reckoned by *millions*. This statement is not a general and sweeping *assertion*, like that of the comptroller, but is susceptible of ample and abundant *proof*.

MATTHEW T. BRENNAN,
Sheriff of the City and County of New York.

STATE OF NEW YORK.

No. 68.

I N S E N A T E ,

March 27, 1873.

LIST OF GENERAL ORDERS.

G. O.

416. An act to legalize and confirm the merger and consolidation of the Whitehall and Plattsburgh Railroad Company, the New York and Canada Railroad Company, and the Montreal and Plattsburgh Railroad Company into a new corporation, called the New York and Canada Railroad Company, and granting and extending thereto the provisions of the act relating to the consolidation of railroad companies, and for facilitating the construction of the New York and Canada railroad and the several acts of this State relating to said companies or either of them.
417. An act authorizing the Canal Commissioners to construct a farm bridge over Champlain canal, on farm belonging to Miles Johnson, in town of Whitehall.
418. (Assembly, 536.) An act for the relief of R. T. Baxter.
419. An act to amend an act entitled "An act to amend an act to incorporate the city of Troy," passed April 12th, 1816, and the several acts amendatory thereto, and also to amend other acts relating to the city of Troy, passed March 23d, 1872.
420. An act to incorporate the Auburn fire department.
421. An act to alter the map or plan of the city of New York by extending Desbrosses street.

G. O.

422. An act to authorize the common council of the city of Utica to borrow and disburse money for city purposes, and to levy and collect taxes to pay the same.
423. (Assembly, 245.) An act to authorize the city of Elmira to purchase lands for cemetery purposes, and to issue the bonds of the city for the payment thereof.
424. An act to enable the trustees of the parochial fund for the diocese of Western New York to convey lands situated in the diocese of Central New York.
425. An act to incorporate the Cathedral Church of St. John the Divine, of the Protestant Episcopal Church, in the diocese of New York.
426. (Assembly, 340.) An act to enable the superintendents of the poor of the various counties, and the overseers of poor of the several cities and towns of this State to obtain information as to the pecuniary condition of persons applying for relief as paupers.
427. (Assembly, 70.) An act to incorporate the Kingston Waterworks Company.
428. (Assembly, 185.) An act to amend an act entitled "An act regulating the sale of intoxicating liquors," passed April 11th, 1870.

STATE OF NEW YORK.

No. 69.

IN SENATE,

March 28, 1873.

COMMUNICATION

FROM THE COMPTROLLER OF THE CITY OF NEW YORK, IN REPLY TO A RESOLUTION OF THE SENATE RELATIVE TO THE PAVING OF CERTAIN STREETS AND AVENUES IN SAID CITY WITH WOODEN PAVEMENT, ETC.

STATE OF NEW YORK:

IN SENATE, ALBANY, *March* 21, 1873.

Resolved, That the comptroller of the city of New York be and he is hereby requested and instructed to transmit to the Senate, within five days, a copy of the contract for paving Seventh avenue from Fourteenth street to Fifty-ninth street, in said city, with wooden pavement, or any part thereof; the testimony taken in regard thereto before the commissioners, under chapter 580, of the Laws of 1872; whether or not any judgment has been recovered against said city, on or by reason of such contract; the amount of such recovery, specifying principal, interest and costs; and, if such judgment has been paid, when paid, and by whom the city or comptroller was represented before such commissioners; and, if the said action was tried, when, and before what judge, and who acted as counsel for the plaintiff on such trial.

(By order)

CHAS. R. DAYTON.

CITY OF NEW YORK, DEPARTMENT OF FINANCE, }
COMPTROLLER'S OFFICE, *March 27, 1873.* }

To the Honorable the Senate :

In accordance with the resolution of the Senate, I transmit herewith :

1st. A copy of the contract for paving Seventh avenue, from Fourteenth to Fifty-ninth street, with wooden pavement, dated February 23, 1870, made between the city and Joseph A. Monheimer.

2d. A certificate indorsed on this contract by the contract commissioners, Messrs. Josiah Sutherland and Hooper C. Van Vorst, that they "are satisfied that no fraud has been perpetrated in relation to said contract or agreement, or in the performance thereof."

3d. A copy of the testimony taken before the said contract commissioners.

4th. A certified copy of the transcript of the judgment of the Supreme Court, by which it appears that the name of the attorney in this case was Daniel Seymour ; that the amount of the judgment is \$133,138.30, and that it was filed February 13, 1873 ; of this sum, \$116,146.22 was principal, \$16,850.73 interest, and \$141.35 costs.

5th. A copy of a letter to Hon. E. Delafield Smith, corporation counsel, relative to the payment of this judgment, dated February 14, 1873.

6th. The reply of the corporation counsel, dated February 15, 1873, in which he says : " I am satisfied, after very thorough inquiry and examination, that further litigation would be utterly hopeless, and result in nothing but cost and expense to the city. * * * We have no alternative but to close the litigation and pay the judgment."

7th. A further letter from the corporation counsel, dated February 27, 1873, on this subject, in which he says : " I have personally, fully, and carefully re-examined the case of Monheimer. Upon every possible suggestion of a defense, I am clear we have nothing to support further resistance to the judgment, and I am constrained to advise its payment at once, to avoid useless litigation and expense to the city."

8th. A letter from the comptroller to the corporation counsel, asking information required by the Senate.

9th. The reply of the corporation counsel to that letter, by which it appears the case was tried before Judge McBarrett ; the city was represented on the trial of this case by David J. Dean, assistant in

office of the counsel to the corporation, and that John H. Strahan and Gratz Nathan acted as counsel for the plaintiff on such trial.

It may, perhaps, be well to add that this action was commenced September 18, 1871; that the undersigned has made no payments under it, all previous payments having been made before his entering into office.

With great respect,

AND. H. GREEN.

This agreement, made and concluded this twenty-third day of February, in the year one thousand eight hundred and seventy, by and between the Mayor, Aldermen and Commonalty of the city of New York, by the Croton Aqueduct Board, of the first part, and Joseph A. Monheimer of said city, contractor, of the second part,

Witnesseth, that the said party of the second part has agreed, and by these presents doth agree, with the said parties of the first part, for the consideration hereinafter mentioned and contained, and under the penalty expressed in a bond bearing even date with these presents and hereunto annexed, to furnish at his own proper cost and expense all the necessary materials and labor, and in a good, firm and substantial manner, regulate and pave with wooden block pavement as herein described, and called the Stafford improved pavement, the carriage-way of Seventh avenue, from Fourteenth street to Fifty-ninth street (excepting where now paved with stone-block pavement), and also lay and relay crosswalks, in the manner and under the conditions hereinafter specified; and has further agreed that the said Board shall be and are hereby authorized to appoint such person or persons as they may deem necessary to properly inspect the materials to be furnished and the work to be done under this agreement, and to see that the same correspond with the specification hereinafter set forth, to wit:

SPECIFICATION.

1. All the materials furnished, and all the work done, which, in the opinion of said Board, shall not be in accordance with this specification, shall be immediately removed, and other materials furnished, and work done, that will, in the opinion of said Board, be in accordance therewith.

2. The work under this agreement is to be prosecuted at and from as many different points in such part or parts of the street, on

the line of the work, as the said Board may, from time to time, determine; and at each of said points an inspector will be placed on the day designated for the commencement of the work thereat. Whenever any work is in progress at or from one or more points at a time, an Inspector will be appointed by said Board to supervise each subdivision of the same, whether such subdivision be the culling of the materials for the pavement, or the excavation for and preparation of the foundation, or the laying of the pavement or bridge-stones, or the preparation of the wood to prevent decay, or otherwise. The aggregate time of all the Inspectors so employed will be the time with which the time stipulated for the completion of the work under this agreement will be compared. The Inspectors will be paid each at the rate of three and a half dollars per day. Where the streets, by the operation of paving, are not in a fit condition for public use, proper fences or guards are to be erected at night, and a sufficient number of lights kept burning on and near the work, from twilight in the evening until sunrise, by and at the expense of the contractor.

The right to construct any sewer or sewers, or receiving basins and culverts, in said street, and to grant permits for house connections therewith at any time prior to the laying of the pavement over the line of the same, is expressly reserved by said Board (and said Croton Aqueduct Board reserve the right of suspending the work on said pavement on any part of said line of street or streets at any time during the construction of the same, for the purposes above stated, without other compensation to the contractor, for such suspension than extending the time for completing the work as much as it may have been delayed by such suspension); and said contractor shall not interfere with, or place any impediment in the way of, any person or persons who may be engaged in the construction of such sewer or sewers, or in making connections therewith, or in the construction of any receiving basins and culverts, or in setting or resetting any curb or gutter stones on the line of the street, under direction of the street commissioner or otherwise.

3. In case there shall be, at the time stipulated for the commencement of the work, any earth, rubbish or other incumbrance on the line of the work, the same is to be removed at the expense of the contractor.

4. DESCRIPTION OF MATERIALS.—All wood for the pavement will be prepared by being treated with carbolic acid under the Seeley process.

The wood for the blocks shall be of sound white pine or spruce free from rot or other defects.

The wood for the keys will be of like wood, free from sap, or of wood equal thereto, in the opinion of the Croton Aqueduct Board.

The stringers will be of sound white pine or spruce, or of other wood equal thereto, in the opinion of the Croton Aqueduct Board.

The stringers will not be less than 8 inches wide and $1\frac{1}{2}$ inches thick.

BLOCKS.—The blocks will be 4 inches thick and 6 inches deep, and 6 inches and 12 inches wide, dressed to uniform dimensions. Between street railroad tracks the dimensions of the blocks and sections will be modified under the direction of the Croton Aqueduct Board, as the circumstances may require.

The upper ends of the blocks, excepting those for gutters, will be beveled, so as to form a groove three-quarters of an inch wide running crosswise to the street.

Both sides of the blocks (excepting the end blocks of each section, which will have a groove on one side only) will have in the middle a double dovetailed groove three-quarters of an inch deep and two and a half inches wide to receive the keys. The side keys will be one and one-half inches thick and of the width of the grooves.

Sections of pavement will be formed of the blocks, 3 feet long by two feet wide, so far as practicable, by placing the blocks so as to break joints and keying them together.

On the bottom of the section there will be four grooves running longitudinally, with the section of the same dimension as the grooves above described, in which will be inserted keys projecting one inch below the section and three (3) inches wide. All the keys will extend across the section. The keys shall fit the grooves closely through their entire length.

The gutter-sections will be twelve (12) inches wide and the top of the blocks will be without bevel, forming a smooth surface. The sections will be three feet long, keyed together as above described. Between the rail tracks and elsewhere where space to be filled will not be equal to a whole number of sections, two feet wide, a modification of the width of the sections must be made, as the Croton Aqueduct Board may direct, to close the space. The sections will be arranged to break joints on their longitudinal lines.

The materials for the pavement and crosswalks will be carefully inspected after they are brought on the line of the work, and all

materials which, in quality and dimensions, do not conform strictly to these specifications, will be rejected, and must be immediately removed from the line of the work. The contractor will be required to furnish such laborers as may be necessary to aid the inspectors in the examination and culling of the blocks; and in case the contractor shall neglect or refuse so to do, such laborers as in the opinion of said board may be necessary will be employed by said board, and the expense thus incurred by them will be deducted and paid out of any money then due, or which may thereafter grow due to the said contractor under this agreement.

BRIDGE-STONES.

Where new bridge-stones are required, they are to be furnished in conformity with the following description, to wit:

The bridge-stones to be of the best quality of North river blue stone, free from seams and imperfections. Each stone to be not less than four feet long and two feet wide, and not less than five nor more than seven inches thick throughout, and dressed to an even face, on top, bottom, sides and ends. The ends of the new bridge-stones are to be cut to such bevel as said board may direct, and also so as to form close and even joints from top to bottom when laid. The new stones to be in quality and workmanship similar to the pattern at the office of the said board, and, when laid, to be close-jointed from top to bottom on sides and ends.

The bridge-stones will be carefully inspected after they are brought on the line of the work; and all those which, in quality and dimensions, do not conform strictly to these specifications, will be rejected, and must be immediately removed from the line of the work.

5. All the frames and heads for sewer manholes, and for Croton water or gas stop-cocks, on the line of the work, are to be reset on a level with the new pavement, under the direction and to the satisfaction of the said board. The sewer manholes, if below the grade, will be built up to the proper height by said board. In case new frames or heads shall be required for sewer manholes, or for Croton water or for gas stop-cocks, they will be furnished and set by the Croton aqueduct board, or by the gas company.

CURB AND GUTTER.

6. The curb-stones and such of the present gutter stones as may be retained on the line of the work, are to be re-adjusted and adapted

to the grade of the proposed new work where necessary, under the direction of the surveyor, without charge therefor.

INSPECTOR OF MATERIALS.

7. Due notice will be given to the Croton aqueduct board at least five days before preparing any material for the pavement, that an inspector may be appointed, by said board, to inspect the lumber to be prepared and the process of preparation. And on the day designated by the said board for the commencement of the work at any point or points on the line thereof, the said contractors shall, before disturbing or making any alteration in the present roadway, haul upon the line of the work, at each of such points, a sufficient quantity of paving material for the paving of at least the space between any two intersecting streets.

The materials so brought upon the ground, and before they are laid, will be carefully and thoroughly inspected, as provided for in Specification 4, and all rejected materials shall be immediately removed by the contractor from the line of the work. The contractor will then be required to pile such materials as may have been approved, neatly, on the front of the sidewalk, and in such manner as will preserve sufficient passage-way on the line of the sidewalks, and also permit of free access from the roadway to each house on the line of the street; and not within three feet of any fire hydrant. *After this inspection has been made, and after all the rejected materials shall have been removed entirely from the line of the work, and the accepted materials piled in the manner aforesaid, and not until each of these conditions shall have been faithfully fulfilled, will the contractor be permitted to proceed with the preparation of the road-bed for the new pavement.*

It being expressly understood, that the work is to be prosecuted in sections of not less than the space between any two intersecting streets, and that these provisions relative to the hauling, inspection and removal and piling of materials shall apply to the work on each of said sections on the whole line of the work.

PREPARATION OF ROAD-BED, ETC.

8. All paving and other stones necessary to be removed shall be taken up and removed immediately from the line of the work; the subsoil, rock or other matter is then to be excavated and removed, to the depth required for the pavement and foundation when fully

rammed. *This is to be done without respect to the character of the subsoil or rock as it now exists. To the depth specified above, the material is to be removed, and none of it except clean gravelly earth used in any part of the work.* Care must be taken, in excavating to preserve the proper crown. All holes or inequalities to be filled to a proper level, with sand or gravel only, such filling to be well and faithfully compacted, by rolling or ramming, before the placing thereon of the sleepers on which the pavement is to be laid. Upon the foundation, as thus prepared, where the bridge-stones are to be laid, is to be laid a bed of clean, sharp sand, or gravel only, to the depth necessary to bring the top of the blocks to the proper grade. The contractor may, at his option, compact the road-bed by iron rollers, or by sprinkling and ramming as above stated; *but one or the other method of bringing the earth to a compact body will in all cases be strictly enacted.*

LAYING THE PAVEMENTS, ETC.

9. The road-bed having been brought to the proper grade and cross-section, and compacted to the satisfaction of Croton Aqueduct Board, by rolling or ramming, and with a foundation of three inches of sand, the longitudinal stringers shall be laid, one line at the curb-stone and one line at the rail-track, and rows or lines at equal distances between them, so that the lines of sleepers shall not be more than eight (8) feet apart. There shall be two rows between the rail-tracks. Under the ends of the stringers there shall be a piece of the stringers three feet long, the whole well rammed to support the joints. The spaces between the stringers shall be filled with clean sand, well compacted by ramming. On these longitudinal stringers the cross-stringers shall be laid three (3) feet apart from center to center, across the width of the street, or at right angles to the longitudinal stringers. Where the ends of these stringers do not come on a longitudinal stringer with a bearing of at least three inches, there shall be a joist-piece bedded under the ends, as with the longitudinal stringers.

The spaces between the cross-stringers will be filled with clean sand, and the whole foundation rammed to a solid bearing and to the proper grade and curvature, and sufficient sand laid to fill the spaces between the bottom keys of these sections. On these cross-stringers the sections of pavement, keyed together as before described, shall be laid close to each other and filling the space from curb to curb, excepting where interrupted by the rails of the street railways. The

sections shall have a bearing of at least three inches on the cross-stringer at each end.

As fast as the pavement is laid it shall be covered with clean sand, which shall be swept into the grooves and crevices of the pavement.

LAYING THE CROSSWALKS.

The crosswalks across the line of the new pavement, and also the parallel crosswalks, are, where directed by the Croton Aqueduct Board, to be relaid with the best of the bridge-stones now on the line of the work, new bridge-stones to be used to supply deficiencies. The present bridge-stones when relaid are to be so redressed on the ends and sides as to form close joints from top to bottom. All the new bridge-stones and such of the present bridge-stones as may be relaid are to be well and firmly bedded on a foundation of sand or gravel, extending to the depth of twelve inches from the top of the pavement, well compacted in the manner described in section 8, and laid with close joints from top to bottom on sides and ends, the courses to be so laid that the transverse joints will be broken by a lap of at least one foot. So much of the present pavement or carriage-way on the exterior lines of crosswalks as, in the opinion of said Board, may become necessary, is to be adjusted to the grade of the crosswalks, without extra charge therefor.

OLD MATERIALS.

10. All old materials which it becomes necessary to remove, excepting the sewer manhole heads, and the frames and heads to Croton water or gas stop-cocks, shall be considered as the property of the contractor, and the same shall be immediately removed by him from the line of the work.

CLEARING UP.

11. All surplus materials—earth, sand, rubbish and refuse stones—are to be removed from the line of the work as rapidly as the work progresses. Twelve days after the completion of the work, or at such time as the Croton Board may direct, the covering sand shall be swept into heaps, and immediately removed from the line of the work; and unless this be done within forty-eight hours next thereafter to the satisfaction of said board, the work will not be considered as completed according to this agreement, and if the Inspectors have been previously withdrawn they will be replaced and retained on the work until these stipulations are faithfully fulfilled.

12. All loss or damage arising out of the nature of the work to be done under this agreement, or from any unforeseen obstructions or difficulties which may be encountered in the prosecution of the same, or from the action of the elements, or from incumbrances on the line of the work, to be sustained by the said contractor.

13. The prosecution of the work is to be suspended at such times, and for such period as the said Board may from time to time determine.

14. Wherever the word "contractor" or the words "party of the second part," or the pronouns in place thereof, are used in this contract, they are to be considered as referred to and meaning the party or parties, as the case may be, of the second part to this agreement.

15. And the said party of the second party hereby further agrees that the said party of the first part shall be, and they are hereby authorized to retain, out of the moneys payable to him under this agreement, the certain sum of ten cents, for each square yard of pavement laid under this agreement, and to expend the same in the manner hereinafter provided for, in making such repairs to the work done under this agreement, as the said Croton Aqueduct Board may deem necessary. And it is further agreed, that if, at any time during the period of six months, from the date of the acceptance by said Board of the work under this agreement, the said work or any part or parts thereof (excepting only such part or parts of the work, as after the completion thereof may have been disturbed in the construction or repairs of sewers or drains, or in laying or repairing of gas or water main and service pipes) shall, in the opinion of said Board, require repair, and the said Board shall notify the said party of the second part to make the repairs so required, the said party of the second part will immediately commence and complete the same to the satisfaction of said Board; and in case of failure or neglect on his part so to do within forty-eight hours from the date of the service of the aforesaid notice, that then the said Board shall have the right to purchase such materials as they shall deem necessary, and to employ such person or persons as they may deem necessary, and to undertake and complete the said repairs, and to pay the expense thereof out of the said certain sum retained for this purpose by the said parties of the first part, as before mentioned. And the parties of the first part hereby agree, upon the expiration of the said period of six months, provided that the said work shall at that time be in

good order, which fact shall be determined by a certificate to that effect signed by the head of the appropriate bureau, to pay to the said party of the second part the whole or such part of the sum last aforesaid as may remain after the expenses of making the said repairs in the manner aforesaid, shall have been paid therefrom.

(A.) The said party of the second part further agrees, that the return of one of the City Surveyors to be appointed by the Croton Aqueduct Board to survey the work shall be the account by which the amount of work done shall be computed; and that he shall not be entitled to demand or receive payment for any work upon, in or about the said work, as extra work, unless ordered, in writing, by the Croton Aqueduct Board to do the same as extra work and a price therefor agreed upon previously to its commencement.

(B.) The said party of the second part hereby further agrees, that he will commence the aforesaid work on such day and at such point or points as the said Board may designate, and fully complete the same in accordance with this agreement, on or before the expiration of five hundred (500) days next thereafter, Sundays, holidays and such other days on which the prosecution of the whole of the work, in accordance with the provisions of this agreement, is, in consequence of the weather, necessarily suspended, to be excepted; and that the said specified number of days shall be construed to mean the aggregate time of such Inspectors as may be employed on the work, and not consecutive days; that he will give his personal attention properly to the faithful prosecution of the said work; that he will not sublet the aforesaid work, but will keep the same under his own control; and that he will punctually pay the workmen who shall be employed on the aforesaid work, and in cash current, and not in what is denominated store pay.

(C.) And the said party of the second part hereby further agrees that the said parties of the first part shall be, and they are hereby authorized to deduct and retain out of the moneys which may be due or become due to the said party of the second part, under this agreement, the sum paid for the inspectors or inspectors' wages for each and every day the aggregate time of the said inspectors may exceed the time hereinbefore stipulated for the completion of the whole of the work under the agreement. And the said parties of the first part hereby agree to pay to the said party of the second part the sum of three and a half dollars per day for each and every day that the aggregate time of said inspectors may be less than the time hereinbefore stipulated for its completion.

(D.) The said party of the second part further agrees that if, at any time, the said board shall be of opinion, and shall so certify in writing, that the said work or any part thereof is unnecessarily delayed, or that the said contractor is willfully violating any of the conditions or covenants of this contract, or is executing the same in bad faith, they shall have the power to notify the aforesaid contractor to discontinue all work under this contract, or any part thereof, and thereupon the said contractor shall cease to continue said work, or such part thereof, and the said board shall thereupon have the power to place such and so many persons as they may deem advisable, by contract or otherwise, to work at and complete the work herein described, or any part thereof, and to use such materials as they may find upon the line of said work, or to procure other materials for the completion of the same, and to charge the expense of said labor and materials to the aforesaid contractor, and the expense so charged shall be deducted and paid by the parties of the first part, out of such moneys as may be then due, or may at any time thereafter grow due to the said contractor, under and by virtue of this agreement, or any part thereof; and in case such expense is less than the sum which would have been payable under this contract, if the same had been completed by him, he shall be entitled to receive the difference; and in case such expense shall exceed the last said sum, he shall pay the amount of such excess to the parties of the first part, on notice from the said board of the excess so due.

(E.) And the said party of the second part hereby further agrees that he will furnish the said Oroton Aqueduct Board with satisfactory evidence that all persons who have done work or furnished materials under this agreement, or who may have received or sustained any damage or injury through or by reason of any act or omission, carelessness, or want of skill on the part of said contractor or his agents, in the prosecution of the work aforesaid, and who have given written notice to the said board, before or within ten days after the completion of the work aforesaid, that any balance for such work or materials, or compensation for such damage or injury, is still due and unpaid, have been fully paid and secured.

And in case such evidence be not furnished as aforesaid, such amount as may be necessary to meet the claims of the persons aforesaid shall be retained from the moneys due the said party of the second part, under this agreement, until the liabilities aforesaid shall be fully discharged, or such notice withdrawn.

(F.) And the said party of the second part further agrees, that he will indemnify and save harmless the parties of the first part from all suits or actions, of every name and description, brought against them for or on account of any injuries or damages received or sustained by any party or parties, by or from the said party of the second part, his servants or agents, in the prosecution of said work, or by or in consequence of any negligence in guarding the same, or of any improper materials used in its prosecution, or by or on account of any act or omission of the said party of the second part or his agents; and the said party of the second part hereby further agrees, that the whole or so much of the moneys due to him under and by virtue of this agreement, as shall or may be considered necessary by the Croton Aqueduct Board, shall or may be retained by the said parties of the first part, until all such suits or claims for damages as aforesaid shall have been settled, and evidence to that effect furnished to the satisfaction of the said Board.

And said party of the second part hereby further agrees, that the said party of the first part shall be and are hereby authorized to deduct, out of the moneys due or to grow due to him under this agreement, the sum of ten dollars for each and every return made by the Surveyor of work done under this agreement, and pay the same to said Surveyor as compensation therefor.

And the said party of the second part hereby further agrees to receive the following prices as full compensation for furnishing all the materials and labor which may be required in the prosecution of the whole of the work to be done under this agreement, and in all respects completing the same, and for the use by the party of the first part to this agreement of any and all the patents used in the construction of the pavement herein described, or for the preparation of materials used therein, to wit:

For the wooden pavement, per square yard, the sum of six dollars and fifty cents.

For the new bridge-stones, per square foot, the sum of one dollar and forty cents.

And for relaying the present bridge-stones, per square foot, the sum of thirty-five cents.

It being expressly understood that the measurements shall be taken after the laying or setting of the pavement and bridge-stones, and that the aforesaid prices cover the furnishing of all the different

materials and labor, and the performance of all the work mentioned in this specification and agreement.

And the said party of the second part further agrees that he shall not be entitled to demand or receive payment for any portion of the aforesaid work or materials until the same shall be fully completed in the manner set forth in this agreement, and each and every one of the stipulations hereinbefore mentioned are complied with, and such completion duly certified by the inspectors employed on the work, and by the Croton Aqueduct board; whereupon the parties of the first part will pay, and hereby bind themselves and their successors to pay, to the said party of the second part, in cash, on the confirmation of the assessment to be laid for said work, the whole of the moneys accruing to him under this agreement, excepting such sum or sums as may be lawfully retained, under any of the provisions hereinbefore contained for that purpose, but in case the amount payable under this contract be \$5,000 or over, payments will be made to the said party of the second part, as the work progresses, by monthly installments of seventy per cent on the amount of work performed under and in accordance with the provisions and stipulations of this agreement, in conformity with and subject to the terms and conditions of an ordinance of the mayor, aldermen and commonalty of the city of New York, entitled "*An ordinance to authorize the issue of bonds upon contracts payable by assessments, in pursuance of the act of the Legislature, passed April 16, 1852,*" passed December 30, 1854, and amended March 8, 1861, excepting such sum or sums as may be lawfully retained under any of the provisions of this agreement; provided that nothing herein contained be construed to affect the right hereby reserved of the said board, to reject the whole or any portion of the aforesaid work, should the said certificates be found or known to be inconsistent with the terms of this agreement, or otherwise improperly given.

(L.) And the said party of the second part further agrees that he will at all times save and protect harmless the party of the first part from any loss or damage, or penalty for or on account of any infringement or trespass upon any right or claim of any other parties to any special right or privilege, by letters patent or otherwise, for laying and using any pavement, or preparing materials in the manner and form herein specified, or in the manner in which the pavement herein provided for shall be laid or constructed.

In witness whereof, the parties to these presents have hereunto set their hands and seals the day and year first above written.

For the mayor, aldermen and commonalty of the city of New York, by the Croton aqueduct board.

ROBERT L. DARRAGH.

GEORGE S. GREEN.

JOS. A. MONHEIMER.

Signed and sealed in the presence of
ALEX. F. DODGE.

CERTIFICATE.

We, the undersigned commissioners, acting under and pursuant to the provisions of chapter 580 of the Laws of 1872, having examined into the facts and circumstances relating to the foregoing contract or agreement, and the work performed under the same, as required by Joseph A. Monheimer, the contractor, by written notice, served upon the comptroller of the city of New York, on the 14th day of May, 1872, and, after hearing the said Monheimer, Jas. Everard and H. B. Stevens, inspectors, and John H. Shafer, for said comptroller, do hereby certify that we are satisfied that no fraud has been perpetrated in relation to said contract or agreement, or in the performance thereof.

Dated New York, *August 5*, 1872.

JOS' H SUTHERLAND.

H. C. VAN VORST.

Know all men by these presents, that we, Joseph A. Monheimer, Francis M. Bixby and Charles W. Stafford, of the city of New York, are held and firmly bound unto the mayor, aldermen and commonalty of the said city in the sum of \$50,000, lawful money of the United States of America, to be paid to the said mayor, aldermen and commonalty, or their certain attorneys, successors or assigns; for which payment, well and truly to be made, we and each of us do bind ourselves, and each of our heirs, executors and administrators, jointly and severally, firmly by these presents.

Sealed with our seals. Dated this twenty-third day of February, one thousand eight hundred and seventy.

Whereas the above-bounden Monheimer, by an instrument in writing under his hand and seal, bearing even date with these

presents, has contracted with the said mayor, aldermen and commonalty to furnish all the materials and labor, and in a good, firm and substantial manner regulate and pave Seventh avenue, from Fourteenth street to Fifty-ninth street, with Stafford wood pavement, as therein specified, and to lay and relay crosswalks, and to save the city harmless from loss, damage, claim, demand or penalty, for or on account of any infringement or trespass upon any right or claim of any other parties, to any special right or privilege, by letters patent or otherwise, for laying or using any pavement, or preparing materials in the manner specified in said contract, or in the manner in which the pavement therein provided for shall be laid or constructed.

Now, therefore, the condition of the above obligation is such, that that if the said bounden Monheimer shall well and truly, and in good, sufficient, and workmanlike manner perform the work mentioned in the aforesaid agreement, in accordance with the terms and provisions therein stipulated, and save and keep harmless the said the mayor, aldermen and commonalty of the city of New York, of and from any loss, damage, claim, demand or penalty, as aforesaid; and in each and every respect comply with and fulfill the conditions and covenants therein contained, then this obligation to be void; or else to remain in full force and virtue.

JOS. A. MONHEIMER.

C. W. STAFFORD.

FRANCIS M. BIXBY.

Signed and sealed in presence of
ALEX. F. DODGE.

COPY OF TESTIMONY

Taken before the Commissioners on Contracts, appointed under chapter 580, of the Laws of 1872, in relation to Seventh avenue, paving with Stafford pavement, from Fourteenth street to Fifty-ninth street.

MEETING, MAY 27, 1872.

Contract No. 2020, to Joseph A. Monheimer, for paving Seventh avenue with Stafford pavement, from Fourteenth street to Fifty-ninth street. Mr. Strahan stated that he had brought all the papers in connection with this case; that there were allegations of fraud in reference to the award of the contract, and also as regards the execu-

tion of the work. All these matters had been up before Judge Robinson, of the Common Pleas, who considered that the charges were not sustained, and dissolved a temporary injunction which he had granted. Mr. Sutherland suggested that this was an important question. The Stafford pavement is a patent pavement. Could the commissioners inquire, under this act, if there was any fraudulent arrangement made between the patentee and the common council in ordering the work to be done, provided the contract was awarded in accordance with the ordinance, and the work done in accordance with the contract? Could the commissioners go into the inquiry whether the patentee had bribed the common council to get the act passed?

Mr. Strahan—I think the case within the jurisdiction of the commissioners, provided any evidence is offered bearing upon that question; I think it is not only relating to the contract but it is the foundation for the contract, and if it is vitiated there it is vitiated in everything.

Mr. Sutherland—Then, however well the work is done, although the contractor has fully fulfilled the contract, he cannot be paid because the common council was corrupt in granting the contract.

Mr. Strahan—If the contractor has corrupted the common council.

Mr. Sutherland—Is the contractor in all these cases the patentee?

Mr. Strahan—No, sir, but if I am in a position to satisfy you that the contractor has been a party to the fraud, and, through improper influence with the common council, has obtained a better contract for himself than he should, I would maintain that it was a case of fraud where you would not certify the work. However, I am not prepared in this case to take any such position. I have read over the papers.

Mr. Sutherland—Is there anybody in the room prepared to show fraud in this case?

Mr. Strahan—I gave notice to the attorneys who appeared in this matter before Judge Robinson, to appear, but they have not come.

Mr. Sutherland—Is there any one present to offer evidence on the subject of fraud, in regard to the work of paving Seventh avenue, from Fourteenth street to Fifty-ninth street, either in the award of the contract or the execution of the work?

Mr. Strahan—There does not appear to be any person present. However, the points are presented in these papers.

Mr. Windgate—These allegations were made, but no proofs were produced to sustain them. The matter was heard before Judge

Robinson, and the parties failed to make out their complaint, and the judge dissolved the injunction.

JOSEPH A. MONHEIMER sworn :

Examined by Mr. SUTHERLAND :

Q. Are you the contractor in this case? A. I am.

Q. Were you the lowest bidder? A. I do not know that there was any bid but mine, being a patent pavement. I suppose there could not be; I would have protested against any other bidder.

Q. You had the right from the patentee to do this kind of work? A. The patent belongs to a company, and I took out the right from the patentee, paying a royalty of twenty-five cents a yard. The company is called the Stafford Pavement Company. The late Judge Whiting was president of the company.

Q. As I understand, they gave you a right to construct the pavement, provided you could get the contract, you paying them a certain royalty? A. Yes, sir, twenty-five cents a yard.

Q. You could not lay down this pavement without their permission? A. No, sir.

Q. There was an ordinance passed that the work should be done? A. Yes, sir.

Q. Did you have anything to do with it? A. Nothing whatever.

Q. Did you in any manner or way influence any vote of the common council on the question? A. No, sir.

Q. Directly, or indirectly? A. No, sir; the ordinance had been passed before I made any arrangement with the company.

Q. Do you know of any arrangement made between the patentee and the common council? A. No, sir; I had nothing to do with it; the ordinance was passed before I had anything to do with the matter.

Q. How much was to be paid a yard? A. Not to exceed \$6.50.

Q. Did you superintend the execution of the work? A. Yes, sir; I was going between the work and the factory.

Q. Has the work been fully completed? A. Yes, sir; two years ago.

Q. Was it done according to contract? A. Yes, sir.

Q. Was there any fraudulent evasion of the contract, so far as you know, in carrying it out? A. No, sir, none whatever.

Q. You applied to whom, for the contract. A. The Croton Aqueduct Commission; the ordinance instructed them to make the contract.

Q. You applied for the work? A. They advertised it, and I put it in a bid; and it was awarded to me.

Q. Did you file a notice under this act with the comptroller of your claim. A. Yes, sir.

Q. Have you heard any objection to the manner in which this work was done? A. I have heard the objection that has been spoken of, in the court of common pleas.

Q. The injunction there granted was dissolved? A. Yes, sir.

Q. When was the decision made by Judge Robinson? A. In October, 1871, I understood.

Q. When you got through the work, was any report made of it? A. Yes, sir; a report by Mr. Tracey, the engineer, and Mr. Michaels, who surveyed the work. The inspector and the water purveyor were there every day, while the work was going on. It is the duty of the water purveyor to examine this work. That surveyor has to determine the measurement of the work, and the purveyor certifies to the quality of the work.

Q. Were there inspectors on your work? A. Yes, sir; quite a number.

By Mr. JAQUES:

Q. Was the work done under your supervision? A. Yes, sir; the whole of it, so far as I could, going between the work and the factory; I was looking after it every day.

Q. Do you know of any fraud in relation to the passage of this act? A. No, sir.

Q. How much is due you on this contract? A. Thirty per cent.

By Mr. STRAHAN:

Q. Did you have any connection with this matter before the ordinance was altered as to the price? A. No, sir; I think the alteration was before that.

Q. What was the charge? A. From five dollars to six dollars and twenty-five cents a yard.

Q. Was the ordinance advertised? A. Yes, sir; it was not to exceed six dollars and fifty cents; I was looking for the advertisement to put in my bid.

H. G. STEVENS sworn:

Examined by Mr. SUTHERLAND:

Q. You were the inspector appointed on this work? A. Yes, sir.

Q. Was the work done under your inspection? A. Yes, sir.

Q. Did you see it regularly from day to day? A. Yes, sir, every day.

Q. How was the work done? A. It was well done.

Q. Done according to the contract? A. Yes, sir; according to the specification; it was my duty to inspect it, and at the close of the work I certified it.

Q. What was done with your certificate? A. It was filed; I never heard any complaint of the work at that time.

By Mr. STRAHAN:

Q. Did you ever hear any objection against the work? A. In regard to the way the work was done I never heard any objection.

JAMES EVERARD SWORN:

Examined by Mr. SUTHERLAND:

Q. What had you to do with this work? I took the sub-contract to do the work.

Q. You were a sub-contractor under the contractor? A. Yes, sir.

Q. You hired men to do the work? A. Yes, sir; I employed men to lay the blocks.

Q. Was the work done in a proper manner, according to the contract? A. Yes, sir, it was done as near as possible according to the contract; it was done under the inspection of street inspectors.

Q. Done in accordance with the contract? A. Yes, according to the letter of the contract, as near as possible.

Q. Was there any intentional evasion of the contract, in the work you did? A. No, sir, every one seemed pleased with it.

Q. Did you never hear of this lawsuit? A. Yes, sir, I heard of the suit.

The consideration of this case was adjourned to Wednesday night.

WEDNESDAY, *May* 29, 1872.

Not taken up.

MEETING, JUNE 5, 1872.

Contract No. 2020, to Jos. A. Monheimer, for Stafford pavement on Seventh avenue, from Fourteenth to Fifty-ninth street.

Hearing resumed.

JAS. EVERARD, SWORN :

Examined by Mr. WINGATE :

Q. Have you made an examination of that portion of Seventh avenue covered by this contract ? A. Yes, sir ; last week.

Q. State to the commissioners the result of your examination ? A. I made a little memorandum of the condition of the avenue as I rode over it ; I commenced at Fifty-ninth street ; from Fifty-ninth to Fifty-fifth street, I found it in perfect condition ; at Fifty-fifth street, a drain had been constructed, and the pavement taken up on the east side ; from Fifty-fifth to Fifty-third street it was in good condition, with the exception of a house connection opposite to No. 809, where a connection had been made with the main sewer, there there was a slight depression ; from Fifty-third to Forty-ninth street it was very good, except a slight depression of about half a dozen blocks, which would not take more than ten minutes' work to repair ; from Forty-ninth to Forty-eighth street it was in good repair, except a house connection opposite to No. 720 Seventh avenue ; from Forty-eighth to Forty-seventh street it was in perfect order ; on the corner of Forty-seventh street, some blocks were taken up by the Mutual Gas Light Company ; from Forty-seventh to Forty-fourth street, there was a slight depression caused by the main sewer being laid ; from Forty-fourth to Forty-second street, on the east side, there was some slight settlement caused by drain running in the surface of the street ; the attention of the department of public works was called to this, and they were told that the pavement would not stand unless they devised some means to drain the water, they constructed a man-hole with a pipe attached, on the corner of Forty-fourth street for that purpose, but it proved a failure ; there are several points along the avenue where man-holes have been built, and new stop-cocks have been placed ; the blocks have settled around them on account of the earth not being rammed properly. From Forty-second to Forty-first street, there is a settlement caused by the laying of the main sewer and drains in front of No. 511 ; the contractor remonstrated with them for not properly ramming the earth filling ; from Forty-first to Fortieth street, there is a slight settlement, caused by the laying of

the main sewer ; from Fortieth to Thirty-ninth street, is in good condition ; from Thirty-ninth to Thirty-eighth street, is in good condition, except in front of No. 529 Seventh avenue, where they are tearing up blocks to lay the gas pipe ; from Thirty-eighth to Thirty-sixth street, is in good condition, except where the Seventh Avenue Railroad Company have torn up the pavement to renew their track ; from Thirty-sixth to Thirty-fourth street, there is a slight depression, on account of the laying of the main sewer and house connections ; from Thirty-fourth to Thirty-third street, is in very good condition, except a house connection in front of No. 430, and places where the Seventh Avenue Railroad Company have torn up to repair their track ; from Thirty-third to Thirty-second street, there is a settlement caused by the laying of the main sewer ; on the north-west corner of Thirty-second street, there is a settlement caused by the connection of the culvert to the basin ; from Thirty-second to Thirty-first street, there is a settlement caused by the laying of the main sewer and house connections ; from Thirty-first to Thirtieth street, is in good condition, except in front of house No. 372, which had a house connection.

By Commissioner VAN NORT :

Q. Where did the main sewer commence? A. At Geenwich avenue.

Q. Why is it so much depressed in one place and not in another? A. I suppose on account of rock excavations ; from Thirtieth to Twenty-ninth street is in good order ; from Twenty-ninth to Twenty-eighth street is in good order ; from Twenty-seventh to Twenty-sixth street is in good order, except a slight depression on the east side, caused by the settlement of the main sewer ; from Twenty-sixth to Twenty-fifth street is in good order, and from Twenty-fifth to Twenty-fourth street is in good order ; from Twenty-fourth to Twenty-third street, on the east side there is a depression from the house connection with No. 234 Seventh avenue ; from Twenty-third to Twenty-second street is in good order, except a slight depression on account of the laying of the main sewer ; from Twenty-second to Twentieth street is in good order ; at the intersection of Twentieth street and Seventh avenue, there is a depression caused by the laying of culverts to the basin ; from Twentieth to Fourteenth street is in good order, except on the west side of Seventh avenue, near Fourteenth street, where there is a depression caused in front of the house by the connection of the drain with the main sewer ; there is, also, on

the line of the work, several places where bonfires have been made, which now give the appearance of a defect in the work.

Q. Did you lay this pavement? A. I had a sub-contract for doing the work.

Q. Did you see to preparing the foundation for laying the pavement? A. All the way.

Q. Did you see to this pounding down over the sewer? A. So far as we had any control.

Q. Did you see that the earth was properly pounded down over the sewer? A. Yes, sir; for the distance that we made the excavation; our excavation went down eighteen or twenty inches.

Q. How soon after the sewer was made did you lay the pavement? A. Right after; on the fresh earth the order of the department of public works was to proceed.

Q. Did they give you an even surface after constructing the sewer to put down your pavement on? A. Yes; the surface was leveled off.

Q. Could you tell from the appearance where the sewer was made? A. Yes, sir; the pavement had been raised; the place was already paved with cobblestone pavement; we took up the cobblestone pavement.

By Mr. STRAHAN:

Q. What would it cost to-day to put that part in the condition in which it was when the contractor finished the work—to restore its inequalities and make good all the defects? A. If I had to do it, I would start from Fifty-ninth street and put it all in repair down to Fourteenth street, for \$500.

Q. Can you say how this is laid? A. It is laid in sections.

Q. If there is a slight depression in one of the longitudinal stringers, what effect would that have? A. It may throw twelve blocks out of line; six blocks are laid on a longitudinal stringer.

By Commission VAN NORT:

Q. Do you mention that as one of the beauties of the patent, or a cause of the depression? A. The patentee claims this mode as the best, because he can lift it up in sections.

Q. Do you know of this pavement being laid in other cities? A. No, sir; I know nothing about it.

Q. Do you know anything about the price paid in Boston? A. No, sir, all I know is in relation to the work I have done.

Q. You have laid stone block pavement? A. Yes, sir.

Q. At how low a rate have you laid stone block pavement? A. Some at \$2.40, and some at \$2.50 a yard.

Q. And this Stafford pavement costs \$6.00 a yard? A. I don't know; all I know about it, is doing the work.

Q. When did you make this examination of the work? A. Last week; I drove over in a wagon; I made a memorandum as I proceeded on the line of the work.

Q. Both sides of the avenue? A. Yes, sir; I had a man with me who noted down everything, as I drove from side to side.

Q. The street that you speak of is laid on the westerly side? A. On both sides.

Q. Then, the depressions of which you speak, exist on both sides? A. On both sides; sometimes on the east and sometimes on the west.

By Mr. WINGATE:

Q. Can you state what would be the effect of rock filling, if used in this sewer? A. The rock filling in any place will cause more or less depression, for a year or so, until the earth fills up all the crevices. If there is any rain, the earth filters through until all the crevices are filled up.

Q. Do you know whether the house connections were made after the laying of this pavement? A. A great many of them.

MEETING, JUNE 13, 1872.

Testimony of J. A. MONHEIMER.

By Mr. JAKES.

Q. Mr. Everard had the laying of this pavement on Seventh avenue, did he? A. Yes, sir, he had the laying of it.

Q. Do you happen to know whether any blasting was actually required in the grading of Seventh avenue? A. I saw them blast, I could not tell how much; I am not familiar with blasting.

Q. I have been informed that what rock excavation was necessary on Seventh avenue was mainly done with a pick? A. There is not a word of truth in that. The man that told you that is imposing upon you. I don't suppose half the contractors in this room know about the rock on Seventh avenue. He was imposing on you.

Q. I was told outside that what rock excavation was necessary on Seventh avenue in laying that pavement was mainly done with a pick?

Mr. Van Vorst—That is not in this case.

Mr. Jakes—I know, but Mr. Monheimer happens to be here; you are not able to say to what extent blasting was necessary on that

avenue? A. No, sir ; I made a bargain with him to do it for so much, and I felt relieved from that rock question when I made it.

Q. That was included under Mr. Everard's contract? A. Yes, sir ; he had to take the rock out and lay the blocks.

MEETING OF AUGUST 2, 1872.

Mr. Spinola appears for the contractor, and asks whether the city has any objections to the contract being passed.

Mr. Strahan states that he has given all the information he has on the subject ; that personally he has no objection. He states that the city advertised for proposals under an ordinance which had been passed, directing the paving of Seventh avenue with the Stafford pavement, and that subsequently Mr. Monheimer, the contractor, who had no intention or thought of performing the work until after the ordinance was passed, made an arrangement by which he was to give the patentee of the pavement twenty-five cents a square yard for the paving done under the ordinance, and that he then put in a bid and was awarded the contract. So far as the evidence of Mr. Monheimer was concerned, he was satisfied that Mr. Monheimer had no interest in the Stafford pavement at the time the resolution was passed, and that if there was any fraud in obtaining the passage of the resolution, Mr. Moheimer was not a party to it.

Mr. Van Vorst—I understand that the comptroller makes no objection to this contract.

Mr. Strahan—He has laid the evidence before you, and I have no objection arising out of it that I can state to you.

Mr. Van Vorst—You think that all questions of fraud are eliminated from the contract ?

Mr. Strahan—So far as the evidence of Mr. Monheimer is concerned, I am satisfied that there was no fraud in it at all.

Names of Parties against whom judgments have been obtained.		Names of Parties in whose favor judgments have been drawn.	
The Mayor, Aldermen and Commonalty of the City of New York.		Joseph A. Monheimer.	
Damages and costs.	Time of Filing.	Attorney's Name.	
\$133,133 30	Feb'y 13, 1873, at 10 o'cl and 53 min. M.	Daniel Seymour.	

CLERK'S OFFICE, *New York County.* }
 NEW YORK, *March 3, 1873.* }

I, Charles E. Loew, Clerk of the county of New York, do hereby certify that the foregoing is a correct transcript from the docket of judgments kept in my office, of a judgment rendered in the Supreme Court of the State of New York for said county.

CHAS. E. LOEW, *Clerk.*

CITY OF NEW YORK, DEPARTMENT OF FINANCE, }
 COMPTROLLER'S OFFICE, *February 14, 1873.* }

HON. E. DELAFIELD SMITH, *Counsel to the Corporation:*

SIR.—The within transcript of judgment, Joseph A. Monheimer, for \$133,138.30, of February 13, 1873, has been served at this department with request of payment.

I am not satisfied that this judgment should be paid at the present time without some further attempt to avoid the liability of the city, and I would accordingly request, if there is any ground for the same, that an appeal be taken to the General Term from the judgment as entered.

Respectfully yours,

ANDREW H. GREEN, *Comptroller.*

CITY OF NEW YORK, LAW DEPARTMENT, }
 OFFICE OF COUNSEL TO THE CORPORATION, }
 82 Nassau street, *February 15, 1873.* }

HON. ANDREW H. GREEN, *Comptroller:*

SIR.—In the case of Joseph A. Monheimer against the city, in which I have the honor to receive a communication from you, I am satisfied, after very thorough inquiry and examination, that further litigation would be utterly hopeless, and result in nothing but cost and expense to the city. I was precluded from raising any question of fraud upon the trial by the legal result of the investigation and determination made by the legislative commission headed by Judge Sutherland, to which commission that question was, by law, referred.

Every other question presenting any ground of defense was raised, after consultation between my assistants Mr. Anderson and Mr. Dean, and myself, and was fully and tenaciously urged upon the court.

We have no alternative but to close the litigation and pay the judgment.

Through the astuteness of Mr. Dean, the claim was reduced in the sum of \$13,000, so that the defense to this point was not without fruits.

I am, sir,

Very respectfully, yours,

E. DELAFIELD SMITH,

Counsel to the Corporation.

NO. 14 EAST FORTIETH STREET,
NEW YORK, *Feb. 27, 1873.* }

HON. ANDREW H. GREEN, *Comptroller* :

DEAR SIR.—Although confined to my house by severe indisposition, I have personally, fully and carefully re-examined the case of Monheimer.

Upon every possible suggestion of a defense, I am clear we have nothing to support further resistance to the judgment, and I am constrained to advise its payment at once, to avoid useless litigation and expense to the city.

Certain that all efforts to defeat this claim have been exhausted in my office, and appreciating your characteristic and honorable labors to the same end,

I am, dear sir,

Respectfully, yours,

E. DELAFIELD SMITH,

Counsel to the Corporation.

CITY OF NEW YORK, DEPARTMENT OF FINANCE, }
COMPTROLLER'S OFFICE, *March 24, 1873.* }

HON. E. DELAFIELD SMITH, *Counsel to the Corporation* :

SIR.—I send herewith a copy of a resolution, received from the honorable the Senate, relative to contract for paving Seventh avenue from Fourteenth street to Fifty-ninth street.

I shall be much obliged if you will promptly furnish me with the information, so far as it is within the sphere of your department, that is necessary to enable me to respond to the requirements of the honorable the Senate, and am,

Yours respectfully,

ANDREW H. GREEN,

Comptroller.

CITY OF NEW YORK, LAW DEPARTMENT, }
OFFICE OF THE COUNSEL TO THE CORPORATION, *March 27th, 1873.* }

HON. ANDREW A. GREEN, *Comptroller of the city of New York* :

SIR.—I duly received your letter of the 24th inst., inclosing a copy of a resolution, adopted by the Senate on the 21st inst., in relation to a contract for paving Seventh avenue, from Fourteenth street to Fifty-ninth street, and requesting me to furnish you with the information necessary to answer said resolution, so far as the same lies within the sphere of my department.

Neither the contract in question, nor any copy of it is in file in this office.

The proceedings before the commissioners, under chapter 580 of the Laws of 1872, were completed before my appointment as counsel to the corporation; there is no record in this office in reference to

such proceedings, and I have no official knowledge or information in relation to the same.

Judgment has been recovered against the city, on said contract, for \$133,112.45 ; being for principal, \$116,146.22, interest, \$16,824.88, costs, \$141.35.

The action in which such judgments was recovered, was tried before the Hon. William C. Barrett and a jury, on the 12th day of February, 1873, and the counsel who acted for the plaintiff on such trial, was John H. Strahan, Esq., and Gratz Nathan, Esq., David J. Dean, Esq., assistant in the office of the counsel of the corporation, appearing in behalf of the city.

• I am, sir,

Yours very respectfully,

E. DELAFIELD SMITH,

Counsel to the Corporation.

AMENDMENTS PROPOSED

TO THE

Constitution of the State of New York

BY THE

CONSTITUTIONAL COMMISSION.

TRANSMITTED TO THE LEGISLATURE MARCH 25, 1878.

**ALBANY:
THE ARGUS COMPANY, PRINTERS,
1873.**

STATE OF NEW YORK.

No. 70.

IN SENATE,

March 25, 1873.

AMENDMENTS PROPOSED

TO THE

CONSTITUTION OF THE STATE OF NEW YORK BY
THE CONSTITUTIONAL COMMISSION.

STATE OF NEW YORK:

CONSTITUTIONAL COMMISSION, }
ALBANY, *March* 21, 1873. }

Hon. JOHN C. ROBINSON,

President of the Senate:

SIR.—I have the honor to transmit herewith a certified copy of the amendments to the Constitution of this State, proposed by the Commission appointed pursuant to chapter 884, Laws of 1872, to propose amendments to the Constitution.

Also, a copy of a resolution adopted by said Commission, recommending a form of ballot for submission of the amendments to the people.

The committees which framed the amendments submitted reports, setting forth the considerations which induced the adoption thereof by the Commission, copies of which are herewith annexed.

I have the honor to be,

Your obedient servant,

ROBT. H. PRUYN,

Chairman.

AMENDMENTS.

STATE OF NEW YORK:

CONSTITUTIONAL COMMISSION, }
ALBANY, *March 21st*, 1873. }

To the Legislature :

The following are the amendments proposed to the several Articles of the Constitution.

No amendments are suggested to Article One of existing Constitution.

Sections one and two of Article Two are amended so as to read as follows :

ARTICLE II.

SECTION 1. Every male citizen of the age of twenty-one years, who shall have been a citizen for ten days, and an inhabitant of this State one year next preceding an election, and for the last four months a resident of the county, and for the last thirty days a resident of the election district in which he may offer his vote, shall be entitled to vote at such election in the election district of which he shall at the time be a resident, and not elsewhere, for all officers that now are or hereafter may be elective by the people, and upon all questions which may be submitted to the vote of the people of the State ; provided that, in time of war, no elector in the actual military service of the State, or of the United States, in the army or navy thereof, shall be deprived of his vote by reason of his absence from such election district ; and the Legislature shall have power to provide the manner in which and the time and place at which such absent electors may vote, and for the return and canvass of their votes in the election districts in which they respectively reside.

§ 2. No person who shall receive, expect or offer to receive, or pay, offer or promise to pay, contribute, offer or promise to contribute to another, to be paid or used, any money or other valuable thing, as a compensation or reward for the giving or withholding a

vote at an election, or who shall make any promise to influence the giving or withholding of any such vote, or who shall make or become directly or indirectly interested in any bet or wager depending upon the result of any election, shall vote at such election; and upon challenge for such cause, the person so challenged, before the inspectors or other officers authorized for that purpose receive his vote, shall swear or affirm before such inspectors or other officers that he has not received or offered, does not expect to receive, has not paid, offered or promised to pay, contributed, offered or promised to contribute to another, to be paid or used, any money or other valuable thing as a compensation or reward for the giving or withholding a vote at such election, and has not made any promise to influence the giving or withholding of any such vote, nor made or become directly or indirectly interested in any bet or wager depending upon the result of such election.

The Legislature, at the session thereof next after the adoption of this section, shall, and from time to time thereafter may, enact laws excluding from the right of suffrage, all persons convicted of bribery or of any infamous crime.

Sections 3, 4 and 5 of existing Constitution not amended.

Article Three is amended as follows:

ARTICLE III.

SECTION 1. The legislative power of this State shall be vested in a Senate and an Assembly.

§ 2. The Senate shall consist of thirty-two members. The senators shall be chosen for four years.

§ 3. The State is divided into eight districts, to be known as Senate districts, each of which shall choose four senators.

The first district consists of the counties of Richmond, Kings, Queens and Suffolk.

The second district consists of that part of the city and county of New York situate south of a line drawn through the middle of Twenty-sixth street from the Hudson river to the East river.

The third district consists of that part of the city and county of New York situate north of a line drawn through the middle of Twenty-sixth street from the Hudson river to the East river, and of the counties of Westchester, Putnam and Rockland.

The fourth district consists of the counties of Dutchess, Columbia, Orange, Sullivan, Ulster, Greene, Schoharie, Albany and Schenectady.

The fifth district consists of the counties of Rensselaer, Washington, Saratoga, Warren, Essex, Clinton, Franklin, St. Lawrence, Herkimer, Montgomery, Hamilton, Fulton and Lewis.

The sixth district consists of the counties of Delaware, Otsego, Broome, Chenango, Madison, Cortland, Tioga, Tompkins, Chemung, Schuyler, Steuben, Allegany, Yates and Seneca.

The seventh district consists of the counties of Jefferson, Oswego, Oneida, Onondaga, Cayuga, Wayne, Ontario and Livingston.

The eighth district consists of the counties of Monroe, Orleans, Genesee, Wyoming, Niagara, Erie, Cattaraugus and Chautauqua.

So soon as the Senate first elected under the provisions of this article shall meet, it shall cause the senators from each district to be divided, by lot, into four classes of one in each class, the classes to be numbered first, second, third and fourth. The seats of senators of the first class shall be vacated at the end of the first year; of the second class, at the end of the second year; of the third class, at the end of the third year; of the fourth class, at the end of the fourth year; and after the first election there shall annually be elected one senator in each Senate district.

The senators who shall have been elected at the time this section takes effect shall hold their office to and including the thirty-first day of December thereafter.

§ 4. An enumeration of the inhabitants of the State shall be made, under the direction of the Legislature, in the year one thousand eight hundred and seventy-five, and in every tenth year thereafter.

§ 5. The Assembly shall consist of one hundred and twenty-eight members, elected for one year. The members of Assembly shall be apportioned among the several counties of the State, by the Legislature, as nearly as may be, according to the number of their respective inhabitants, excluding aliens, and shall be chosen by single districts. The Assembly districts shall remain as at present organized, until after the enumeration of the inhabitants of the State, in the year eighteen hundred and seventy-five. The Legislature, at its first session after the return of every enumeration, shall apportion the members of Assembly among the several counties of the State, in manner aforesaid, and the board of supervisors in such counties as may be entitled, under such apportionment, to more than one member, except the city and county of New York, and in said city and county the board of aldermen of said city, shall assemble at such time as the Legislature making such apportionment shall prescribe, and divide their respective counties into Assembly districts, each of which dis-

districts shall consist of convenient and contiguous territory, equal to the number of members of Assembly to which such counties shall be entitled, and shall cause to be filed, in the offices of the Secretary of State and the clerks of their respective counties, a description of such districts, specifying the number of each district and the population thereof, according to the last preceding enumeration, as near as can be ascertained, and the apportionment and districts shall remain unaltered until another enumeration shall be made as herein provided. No town shall be divided in the formation of Assembly districts. Every county heretofore established and separately organized, except the county of Hamilton, shall always be entitled to one member of the Assembly, and no new county shall hereafter be erected, unless its population shall entitle it to a member. The county of Hamilton shall elect with the county of Fulton, until the population of the county of Hamilton shall, according to the ratio, be entitled to a member. But the Legislature may abolish the said county of Hamilton, and annex the territory thereof to some other county or counties. Nothing in this section shall prevent division at any time of counties and towns, and the erection of new towns and counties by the Legislature.

§ 6. Each member of the Legislature shall receive, for his services, an annual salary of one thousand dollars. The members of either house shall also receive the sum of one dollar for every ten miles they shall travel, in going to and returning from their place of meeting, once in each session, on the most usual route. Senators, when the Senate alone is convened in extraordinary session, or when serving as members of the court for the trial of impeachments, and such members of Assembly, not exceeding nine in number, as shall be appointed managers of an impeachment, shall receive an additional allowance of ten dollars a day.

§ 7. No member of the Legislature shall receive any civil appointment within this State, or to the Senate of the United States, from the Governor, the Governor and Senate, or from the Legislature, or from any city government during the time for which he shall have been elected; and all such appointments and all votes given for any such member, for any such office or appointment, shall be void.

§ 8. No person shall be eligible to the Legislature, who at the time of the election is, or within one hundred days previous thereto has been a member of Congress, a civil or military officer under the United States, or an officer under any city government. And if any person shall, after his election as a member of the Legislature, be

elected to Congress, or appointed to any office, civil or military, under the government of the United States, or under any city government, his acceptance thereof shall vacate his seat.

No amendments are proposed to sections nine to fourteen, inclusive; those sections to remain as in existing Constitution.

§ 15. No private, special or civil law shall embrace more than one subject, and that shall be named in the title; and any such law which shall embrace more than one subject shall be void. No law shall be revived or amended by reference to its title only; but, the act revived, or the section or sections amended, shall be inserted at length. No general law shall embrace any provision of a private, special or local character.

§ 16. No act shall be passed which shall provide that any existing law, or any part thereof, shall be made or deemed a part of said act, or which shall enact that any existing law, or any part thereof, shall be applicable, except by inserting it in such act.

§ 17. Every bill shall be considered and read twice, section by section, in the Senate and Assembly. Every bill shall have three readings, no two of which shall be on the same day, and the bill and all amendments thereto, shall be printed and distributed among the members of each house, at least one day before the vote shall be taken on its final passage. The question on the final passage shall be taken immediately upon the last reading, section by section, and shall be taken by yeas and nays, and the yeas and nays shall be entered upon the journals. No bill shall be passed unless by the assent of a majority of the members elected to each house.

§ 18. No private, special or local bill shall be introduced in any regular session after sixty days from the commencement thereof, without, in each case, the recorded consent, by yeas and nays, of three-fourths of all the members elected to the house in which said bill is offered; and no such bill shall be passed, unless public notice of the intention to apply therefor, and of the general objects of the bill, shall have been previously given. The Legislature, at the next session after the adoption of this section, and from time to time thereafter, shall prescribe the time and mode of giving such notice, the evidence thereof, and how such evidence shall be preserved.

§ 19. The Legislature shall not pass a private, special or local bill in any of the following cases:

Changing the names of persons.

Laying out, opening, altering, working or discontinuing roads,

highways, streets or alleys, or for draining swamps, marshes or other low lands.

Locating or changing county seats.

Regulating the internal affairs of towns or counties.

Providing for changes of venue in civil or criminal cases.

Incorporating villages or changing or amending the charter of any village.

Providing for the election of members of boards of supervisors.

Selecting, drawing, summoning or impaneling grand or petit juries.

Regulating the rate of interest on money.

The opening and conducting of elections or designating places of voting.

The sale or mortgage of real estate belonging to minors or others under disability.

The protection of game or fish.

Remitting fines, penalties or forfeitures.

Creating, increasing or decreasing fees, per centage or allowances of public officers, during the term for which said officers are elected or appointed.

Changing the law of descent.

Granting to any corporation, association or individual the right to lay down railroad tracks.

Granting to any private corporation, association or individual any exclusive privilege, immunity or franchise whatever.

Providing for building bridges, and chartering companies for such purpose, except on the Hudson river below Waterford, and on the East river, or over the waters forming a part of the boundaries of the State.

The Legislature shall pass general laws providing for the cases enumerated in this section, and for all other cases which, in its judgment, may be provided for by general laws.

But no law shall be passed granting the right to construct and operate a street railroad within any city, town or incorporated village, without the consent of the local authorities having the control and management of the street or highway proposed to be occupied, and, also, the consent of the owners of at least one-half in value of the property, according to the assessment roll of the previous year, bounded on that portion of each street or highway over which it is proposed to construct such road; or, in case the consent of such property owners cannot be obtained, then without the consent of a

board of three commissioners, to be appointed by the supreme court at a general term thereof, in the district in which it is proposed to construct such road. Such commissioners shall not be residents of any county in which any part of such railroad is to be constructed.

§ 20. The Legislature shall neither audit nor allow any private claim or account against the State, but may appropriate money to pay such claims as shall have been audited and allowed according to law.

§ 21. Every law which imposes, continues or revives a tax shall distinctly state the tax and the object to which it is to be applied; and it shall not be sufficient to refer to any other law to fix such tax or object.

§ 22. On the final passage in either house of the Legislature, of any act which imposes, continues or revives a tax, or creates a debt or charge, or makes, continues or revives any appropriation of public or trust money, or property, or releases, discharges or commutes any claim or demand of the State, the question shall be taken by yeas and nays, which shall be duly entered upon the journals, and three-fifths of all the members elected to either house shall, in all such cases, be necessary to constitute a quorum therein.

§ 23. There shall be in the several counties, except in cities whose boundaries are the same as those of the county, a board of supervisors, to be composed of such members, and elected in such manner, and for such period, as is, or may be, provided by law.

§ 24. The Legislature shall, by general laws, confer upon the boards of supervisors of the several counties of the State such further powers of local legislation and administration as the Legislature may from time to time deem expedient.

§ 25. The Legislature shall not, nor shall the common council of any city nor any board of supervisors, grant any extra compensation to any public officer, servant, agent or contractor.

§ 26. Sections fifteen, sixteen, seventeen and nineteen of this article shall not apply to any bill, or the amendments to any bill, which shall be reported to the Legislature by Commissioners who have been appointed pursuant to law to revise the statutes.

Article Four is amended as follows:

ARTICLE IV.

SECTION 1. The executive power shall be vested in a Governor, who shall hold his office for three years; a Lieutenant-Governor shall be chosen at the same time and for the same term. The Governor

and Lieutenant-Governor, elected next preceding the time when this section shall take effect, shall hold office during the term for which they were elected.

§ 2. No person shall be eligible to the office of Governor or Lieutenant-Governor except a citizen of the United States, of the age of not less than thirty years, and who shall have been five years, next preceding his election, a resident of this State.

§ 3 of existing Constitution, not amended.

§ 4. The Governor shall be commander-in-chief of the military and naval forces of the State. He shall have power to convene the Legislature (or the Senate only) on extraordinary occasions. At extraordinary sessions no subject shall be acted upon, except such as the Governor may recommend for consideration. He shall communicate by message to the Legislature, at every session, the condition of the State, and recommend such matters to them as he shall judge expedient. He shall transact all necessary business with the officers of government, civil and military. He shall expedite all such measures as may be resolved upon by the Legislature, and shall take care that the laws are faithfully executed. He shall receive for his services an annual salary of ten thousand dollars, and there shall be provided for his use a suitable and furnished executive residence.

§ 5 of existing Constitution, not amended.

§ 6 of existing Constitution, not amended.

§ 7. The Lieutenant-Governor shall be President of the Senate, but shall have only a casting vote therein. If, during a vacancy in the office of Governor, the Lieutenant-Governor shall be impeached, displaced, resign, die or become incapable of performing the duties of his office, or be absent from the State, the President of the Senate shall act as Governor until the vacancy be filled or the disability shall cease. The Lieutenant-Governor shall receive for his services an annual salary of four thousand dollars, and shall not receive or be entitled to any other compensation, fee or perquisite for any duty or service he may be required to perform by the Constitution or by law.

§ 8. Every bill which shall have passed the Senate and Assembly, shall, before it becomes a law, be presented to the Governor; if he approve, he shall sign it; but if not, he shall return it with his objections to the house in which it shall have originated, which shall enter the objections at large on the journal, and proceed to reconsider it. If, after such reconsideration, two-thirds of the members elected to that house shall agree to pass the bill, it shall be sent, together with the objections, to the other house, by which it shall likewise be recon-

sidered ; and if approved by two-thirds of the members elected to that house, it shall become a law notwithstanding the objections of the Governor. In all such cases, the votes in both houses shall be determined by yeas and nays, and the names of the members voting shall be entered on the journal of each house respectively. If any bill shall not be returned by the Governor within ten days (Sundays excepted) after it shall have been presented to him, the same shall be a law in like manner as if he had signed it, unless the Legislature shall, by their adjournment, prevent its return ; in which case it shall not become a law without the approval of the Governor. No bill shall become a law after the final adjournment of the Legislature, unless approved by the Governor within thirty days after such adjournment.

If any bill presented to the Governor contain several items of appropriation of money, he may object to one or more of such items, while approving of the other portion of the bill. In such case, he shall append to the bill, at the time of signing it, a statement of the items to which he objects ; and the appropriation so objected to shall not take effect. If the Legislature be in session, he shall transmit to the house in which the bill originated a copy of such statement, and the items objected to shall be separately reconsidered. If, on reconsideration, one or more of such items be approved by two-thirds of the members elected to each house, the same shall be part of the law, notwithstanding the objections of the Governor. All the provisions of this section, in relation to bills not approved by the Governor, shall apply to cases in which he shall withhold his approval from any item or items contained in a bill appropriating money.

Article Five, is amended as follows :

ARTICLE V.

SECTION 1. The Comptroller shall be chosen at the same general election, and for the same term, as the Governor, and shall receive a salary of six thousand dollars a year. The person holding the office at the time when this section shall take effect shall continue to hold the same until the first day of January next succeeding the first election of Comptroller, pursuant to the provisions hereof, and shall receive the salary herein named, for such time as he may hold the office beyond the term for which he shall have been elected.

§ 2. The Secretary of State, Attorney-General and State Engineer and Surveyor shall be appointed by the Governor, with the consent of the Senate, and hold their offices until the end of the term of the Governor by whom they shall be nominated, and until their succes-

sors are appointed. No person shall be appointed State Engineer and Surveyor who is not a practical engineer.

§ 3. A Superintendent of State Prisons shall be appointed by the Governor, with the consent of the Senate, and hold his office for five years, unless sooner removed; he shall give security in such amount, and with such sureties, as shall be required by law for the faithful discharge of his duties; he shall have the superintendence, management and control of the State prisons, subject to such laws as now exist or may hereafter be enacted; he shall appoint the agents, wardens, physicians and chaplains of the prisons. The agent and warden of each prison shall appoint all other officers of such prison, except the clerk, subject to the approval of the same by the Superintendent. The Comptroller shall appoint the clerks of the prisons. The Superintendent shall have all the powers and perform all the duties, not inconsistent herewith, which have heretofore been had and performed by the Inspectors of State Prison; and from and after the time when such Superintendent of State Prisons shall have been appointed and qualified, the office of Inspector of State Prisons shall be and is hereby abolished. The Governor may remove the Superintendent for cause at any time, giving to him a copy of the charges against him, and an opportunity to be heard in his defense.

§ 4. The Treasurer shall be chosen by the Senate and Assembly in joint ballot, and hold his office for three years, and until his successor shall be chosen and qualified. He shall, before entering upon the duties of his office, give such security as may be required by law. He may be suspended from office by the Governor during the recess of the Legislature, and until thirty days after the commencement of the next session of the Legislature, whenever it shall appear to him that such Treasurer has, in any particular, violated his duty. The Governor shall appoint a competent person to discharge the duties of the office during such suspension of the Treasurer.

§ 5. The Comptroller, Secretary of State, Attorney-General, Treasurer and State Engineer and Surveyor shall be the Commissioners of the Land Office. The office of Commissioner of the Canal Fund is abolished, and all the powers and duties heretofore had or performed by the Commissioners of the Canal Fund shall hereafter be had and performed by the Comptroller. The Canal Board shall consist of the Lieutenant-Governor, Secretary of State, Treasurer, Attorney-General, State Engineer and Surveyor, and Superintendent of Public Works.

§ 6. A Superintendent of Public Works shall be appointed by the

Governor, with the consent of the Senate, and hold his office until the end of the term of the Governor by whom he was nominated and until his successor is appointed. He shall receive for his services a compensation to be fixed by law. He shall be required by law, to give security for the faithful execution of his office, before entering upon the duties thereof. He shall be charged with the execution of all laws relating to the repair and navigation of the canals; and also of those relating to the construction and improvement of the canals, except so far as the execution of the laws relating to such construction or improvement shall be confided to the State Engineer and Surveyor. Subject to the control of the Legislature, he shall make such rules and regulations for the navigation or use of the canals. He may be suspended or removed from office by the Governor, whenever in his judgment the public interest shall so require; but, in case of removal of such Superintendent of Public Works from office, the Governor shall file with the Secretary of State a statement of the cause of such removal, and shall report such removal, and the cause thereof, to the Legislature at its next session.

§ 7. The Superintendent of Public Works shall appoint not more than three assistant superintendents, whose duties shall be prescribed by him, subject to modification by the Legislature, and who shall receive for their services a compensation to be fixed by law. They shall hold their offices for three years, subject to suspension or removal by the Superintendent of Public Works, whenever in his judgment the public interest shall so require. Any vacancy in the office of any such assistant superintendent shall be filled, for the remainder of the term for which he was appointed, by the Superintendent of Public Works; but in case of the suspension or removal of any such assistant superintendent by him, he shall at once report to the Governor, in writing, the cause of such removal. All other persons employed in the care and management of the canals, except collectors of tolls, and those in the department of the State Engineer and Surveyor, shall be appointed by the Superintendent of Public Works, and be subject to suspension or removal by him.

§ 8. The office of Canal Commissioner is abolished from and after the appointment and qualification of the Superintendent of Public Works, until which time the Canal Commissioners shall continue to discharge their duties as now provided by law. The Superintendent of Public Works shall perform all the duties of the Canal Commissioners and Board of Canal Commissioners, as now declared by law, until otherwise provided by the Legislature.

§ 9. The Governor, by and with the consent of the Senate, shall have power to fill vacancies in the offices in this article named, except as herein otherwise provided; or, if the Senate be not in session, he may grant commissions, which shall expire at the end of the next succeeding session of the Senate.

§ 10. The Secretary of State, Attorney-General, State Engineer and Surveyor and Treasurer, in office at the time this article shall take effect, shall hold their offices until their successors are appointed.

§ 11. The powers and duties of the respective boards, and of the several officers in this article mentioned, shall, except as herein otherwise provided, be such as now are or hereafter may be prescribed by law.

§ 12. All offices for the weighing, gauging, measuring, culling or inspecting any merchandise, produce, manufacture or commodity whatever, are hereby abolished, and no such office shall hereafter be created by law; but nothing in this section contained shall abrogate any office created for the purpose of protecting the public health or the interest of the State in its property, revenue, tolls or purchases, or of supplying the people with correct standards of weights and measures, or shall prevent the creation of any office for such purposes hereafter.

The only amendment proposed to Article Six is in addition to section eighteen, to wit:

ARTICLE VI.

Strike out the first clause of the last sentence of section eighteen of Article six, and insert (new matter in italics):

§ 18. The electors of the several towns shall, at their annual town meeting, and in such manner as the Legislature may direct, elect justices of the peace, whose term of office shall be four years. In case of an election to fill a vacancy occurring before the expiration of a full term, they shall hold for the residue of the unexpired term. Their number and classification may be regulated by law. Justices of the peace, and judges or justices of inferior courts not of record, and their clerks, may be removed, after due notice and an opportunity of being heard by such courts as may be prescribed by law for causes to be assigned in the order of removal. *Judicial officers of courts not of record, in the several cities of the State, having a population of not less than three hundred thousand, shall be appointed by the Governor, with the consent of the Senate, for a term of four years, and shall be subject to removal after due notice, and an opportunity*

of being heard, by such courts as may be prescribed by law, for causes to be assigned in the order of removal; all other judicial officers in cities, whose election or appointment is not otherwise provided for in this article, shall be chosen by the electors of cities, or appointed by some local authorities thereof.

ARTICLE VII.

No amendments are proposed to sections one and two of Article Seven.

Section three is amended by adding at the end of the section the following:

“No extra compensation shall be made to any contractor, but if, from any unforeseen cause, the terms of any contract shall prove to be unjust and oppressive, the Canal Board may, upon the application of the contractor, cancel such contract.”

No amendments are proposed to sections four and five.

Section six is amended so as to read as follows:

§ 6. The Legislature shall not sell, lease or otherwise dispose of the Erie canal, the Oswego canal, the Champlain canal, or the Cayuga and Seneca canal: but they shall remain the property of the State, and under its management forever. Hereafter the expenditures for collections, superintendence, ordinary and extraordinary repairs on the canals named in this section, shall not exceed, in any year, their gross receipts* for the previous year. All funds that may be derived from any lease, sale or other disposition of any canal, shall be applied in payment of the debt for which the canal revenues are pledged.

No amendments are proposed to sections seven, eight, nine, ten, eleven and twelve.

Sections thirteen and fourteen of this article in the existing Constitution are transferred to Article Three, and the following two sections inserted in their place, as sections thirteen and fourteen:

§ 13. The sinking funds, provided for the payment of interest and the extinguishment of the principal of the debts of the State, shall be separately kept and safely invested, and neither of them shall be appropriated or used in any manner, other than for the specific purpose for which it shall have been provided.

§ 14. Neither the Legislature, Canal Board, Canal Appraisers, nor any person or persons acting in behalf of the State, shall audit, allow or pay any claim, which, as between citizens of the State, would be barred by lapse of time. The limitation of existing claims shall

begin to run from the adoption of this section; but this provision shall not be construed to revive claims already barred by existing statutes, nor to repeal any statute fixing the time within which claims shall be presented or allowed, nor shall it extend to any claims duly presented within the time allowed by law and prosecuted with due diligence from the time of such presentment. But if the claimant shall be under legal disability, the claim may be presented within two years after such disability is removed.

ARTICLE VIII.

No amendments are proposed to sections one, two and three of Article Eight. A new provision is inserted at the commencement of section four, and the section, as amended, reads as follows (new matter in italics):

§ 4. *The Legislature shall, by general law, conform all charters of savings banks, or institutions for savings, to a uniformity of powers, rights and liabilities, and all charters hereafter granted for such corporations shall be made to conform to such general law and to such amendments as may be made thereto. And no such corporation shall have any such capital stock, or shall be trustees thereof, or any of them have any interest whatever, direct or indirect, in the profits of such corporation; and no director or trustee of any such bank or institution shall be interested in any loan or use of any money or property of such bank or institution for savings.* The Legislature shall have no power to pass any act granting any special charter for banking purposes; but corporations or associations may be formed for such purposes under general laws.

No amendments are proposed to sections five, six, seven, eight and nine of this article. Two sections are added to the end of the article, as sections ten and eleven, as follows:

§ 10. Neither the credit nor the money of the State shall be given or loaned to or in aid of any association, corporation or private undertaking. This section shall not, however, prevent the Legislature from making such provision for the education and support of the blind, the deaf and dumb, and juvenile delinquents, as to it may seem proper. Nor shall it apply to any fund or property now held or which may hereafter be held by the State for educational purposes.

§ 11. No county, city, town or village shall, hereafter, give any money or property, or loan its money or credit, to or in aid of any individual, association or corporation, or become, directly or indirectly, the owner of stock in or bonds of any association or corpora-

tion, nor shall any such county, city, town or village be allowed to incur any indebtedness, except for county, city, town or village purposes. This section shall not prevent such county, city, town or village from making such provision for the aid or support of its poor as may be authorized by law.

No amendments are proposed to Article Nine.

ARTICLE X.

The only amendment proposed to Article Ten, is a new section at the end of the Article, to be designated as section nine, as follows:

§ 9. No officer, whose salary is fixed by the Constitution, shall receive any additional compensation. Each of the other State officers, named in the Constitution, shall, during his continuance in office, receive a compensation, to be fixed by law, which shall not be increased or diminished during the term for which he shall have been elected or appointed; nor shall he receive, to his use, any fees or perquisites of office or other compensation.

No amendments are proposed to Article Eleven.

Article Twelve is amended so as to read as follows (new matter in italics):

ARTICLE XII.

SECTION 1. Members of the Legislature, and all officers, executive and judicial, except such inferior officers as shall be by law exempted, shall, before they enter on the duties of their respective offices, take and subscribe the following oath or affirmation: "I do solemnly swear (or affirm) that I will support the Constitution of the United States, and the Constitution of the State of New York, and that I will faithfully discharge the duties of the office of —, according to the best of my ability;" *and all such officers who shall have been chosen at any election shall, before they enter on the duties of their respective offices, take and subscribe the oath or affirmation above prescribed, together with the following addition thereto, as part thereof:* "And I do further solemnly swear (or affirm) that I have not directly or indirectly paid, offered or promised to pay, contributed, offered or promised to contribute, any money or other valuable thing as a consideration or reward for the giving or withholding a vote at the election at which I was elected to said office, and have not made any promise to influence the giving or withholding any such vote," and no other oath, declaration or test shall be required as a qualification for any office or public trust,

The only amendment proposed to Article Thirteen, is a modification of the first section, so as to make it read as follows (new matter in italics):

ARTICLE XIII.

SECTION 1. Any amendment or amendments to this Constitution may be proposed in the Senate and Assembly; and if the same shall be agreed to by a majority of the members elected to each of the two houses, such proposed amendment or amendments shall be entered on their journals, with the yeas and nays taken thereon, and referred to the Legislature *at the next regular session*, and shall be published for three months previous to the *election of members of Assembly, and if in the Legislature at such next regular session*, such proposed amendment or amendments shall be agreed to by a majority of all the members elected to each house, then it shall be the duty of the Legislature to submit such proposed amendment or amendments to the people, in such a manner and at such time as the Legislature shall prescribe; and if the people shall approve and ratify such amendment or amendments, by a majority of the electors qualified to vote for members of the Legislature voting thereon, such amendment or amendments shall become part of the Constitution.

No amendments are proposed to Article Fourteen.

An additional Article is proposed, in relation to the government of cities, to be designated as Article Fifteen, as follows:

ARTICLE XV.

SECTION 1. There shall be chosen, by the electors of every city in this State, a Mayor, who shall be the chief executive officer thereof, and who shall see that the duties of the various subordinate executive departments are faithfully performed. He shall nominate, and, with the consent of the Board of Aldermen appoint, the heads of such departments. He shall have power to investigate their acts, have access to all books and documents in their offices, and may examine them and their subordinates under oath. He shall also have power to suspend or remove such heads of departments for misconduct in office or neglect of duty, to be specified in the order of suspension or removal. Mayors of cities shall have the same veto power over acts of Boards of Aldermen, that the Governor possesses, under this Constitution, over acts of the Legislature. And Boards of Aldermen shall have the same power of reconsideration and enactment, by a vote of two-thirds of all the members elected, notwithstanding the

Mayor's objections that is possessed by the Legislature over bills returned to them by the Governor without his approval.

§ 2. Heads of departments shall be vested with power to appoint and remove their subordinate officers.

§ 3. The local government of every incorporated city shall be vested in a Mayor and a Board of Aldermen. Aldermen shall be chosen by districts or wards, not more than three from each district or ward; and the whole number of aldermen shall not be less than one to every fifty thousand of population. There shall also be a board of audit, of not less than five nor more than eleven members. They shall be electors of the city, and shall be chosen by general ticket, by such electors thereof as shall have paid, individually, in the year previous to the election, a tax on property officially assessed for taxation at not less than two hundred and fifty dollars. The assent of such board of audit, by the vote of a majority of all the members elected thereto, shall be necessary to every resolution, ordinance or other proceeding of the Board of Aldermen involving the auditing claims and accounts, the expenditure of money, the contracting of debts, or the levying of taxes and assessments; and the board of audit shall be clothed with no other power.

§ 4. The government of every city shall have, within its own boundary, exclusive legislative power in all matters relating to taxation and expenditure for local purposes; the care, regulation and improvement of its streets, avenues, public grounds and public buildings; of its supply and distribution of water; of its alms-house and its other charitable and benevolent institutions, and may exercise such further powers as shall be conferred by law.

§ 5. The Legislature, at its first session after the adoption of this article, shall enact a general law for the government of cities, in harmony herewith.

The foregoing sections in this article contained shall not take effect until the first day of July, in the year next succeeding that in which this article is adopted, except that any of the officers therein mentioned may be chosen at any previous time provided by law.

An additional Article is also proposed in relation to official corruption, and to be designated as Article Sixteen, as follows:

ARTICLE XVI.

SECTION 1. Any person holding office under the laws of this State who, except in payment of his legal salary, fees or perquisites, shall receive or consent to receive, directly or indirectly, anything of value

or of personal advantage, or the promise thereof, for performing or omitting to perform any official act, or with the express or implied understanding that his official action or omission to act is to be in any degree influenced thereby, shall be deemed guilty of a felony. This section shall not affect the validity of any existing statutes in relation to the offense of bribery.

§ 2. Any person who shall offer or promise a bribe to an officer, if it shall be received, shall be deemed guilty of a felony and liable to punishment, except as herein provided. No person offering a bribe shall, upon any prosecution of the officer for receiving such bribe, be privileged from testifying in relation thereto, and he shall not be liable to civil or criminal prosecution therefor, if he shall testify to the giving or offering of such bribe. Any person who shall offer or promise a bribe, if it be rejected by the officer to whom it is tendered, shall be deemed guilty of an attempt to bribe, which is hereby declared to be a felony.

§ 3. Any person charged with receiving a bribe, or with offering or promising a bribe, shall be permitted to testify in his own behalf in any civil or criminal prosecution therefor.

§ 4. Any district attorney who shall fail faithfully to prosecute a person charged with the violation in his county of any provision of this article which may come to his knowledge, shall be removed from office by the Governor, after due notice and an opportunity of being heard in his defense. The expenses which shall be incurred by any county, in investigating and prosecuting any charge of bribery, or attempting to bribe any person holding office under the laws of this State, within such county, or of receiving bribes by any such person in said county, shall be a charge against the State, and their payment by the State shall be provided for by law.

An additional Article is also added in reference to the time when amendments to the Constitution shall take effect, and designated as Article Seventeen, as follows;

ARTICLE XVII.

SECTION 1. All amendments to the Constitution shall be in force from and including the first day of January succeeding the election at which the same were adopted, except when otherwise provided by such amendments.

Done in Constitutional Commission, in the city of Albany, the fifteenth day of March, in the year one thousand eight hundred and seventy-three.

In witness whereof, we have subscribed our names,

ROB'T H. PRUYN,

Chairman and Member from Third Judicial District.

HIRAM CALKINS, *Clerk.*

JNO. D. VAN BUREN,
AUGUSTUS SCHELL,

GEORGE OPDYKE,
JOHN J. TOWNSEND,
First Judicial District.

ERASTUS BROOKS,
JNO. J. ARMSTRONG,

ODLE CLOSE,
BENJ. D. SILLIMAN,
Second Judicial District.

J. B. HALL,
G. C. BURDETT,

CORNELIUS L. TRACY,
Third Judicial District.

E. W. FOSTER,
A. B. WALDO,

JAMES M. DUDLEY,
SAMUEL W. JACKSON,
Fourth Judicial District.

E. W. LEAVENWORTH,
DANIEL PRATT,

FRANCIS KERNAN,
R. McINTOSH,
Fifth Judicial District.

L. ROBINSON,
B. R. JOHNSON,

JONAS M. PRESTON,
J. F. HUBBARD, JR.,
Sixth Judicial District.

GEO. B. BRADLEY,
VAN R. RICHMOND,

H. V. HOWLAND,
LYSANDER FARRAR,
Seventh Judicial District.

SHERMAN S. ROGERS,
BENJAMIN PRINGLE,

LORENZO MORRIS,
CYRUS E. DAVIS,
Eighth Judicial District.

IN CONSTITUTIONAL COMMISSION.

ALBANY, *March* 14, 1873.

Resolved, That this Commission recommend to the Legislature to provide for the following form of ballot for the submission of the proposed amendments of the Constitution:

NEW CONSTITUTION TICKET.

For all propositions on this ticket which are not canceled with ink or pencil; and against all which are so canceled.

For the proposed amendments of Article Two, "Relative to suffrage and bribery."

For the proposed amendments to Articles Three and Thirteen—Part 1. "Legislature and its organization," section one to eight inclusive, and section one of Article Thirteen.

For the proposed amendment to Article Three, Part 2, "Powers and forms of Legislature," being sections fifteen to twenty-six inclusive.

For the proposed amendments to Article Four—"The Governor and Lieutenant-Governor, their powers and duties."

For the proposed amendments to Article Five—"The State officers, their powers and duties."

For the proposed amendment to section eighteen, Article Six, "Judiciary."

For the proposed amendments to Article Seven—"Finance and canals."

For the proposed amendments to Article Eight, Part 1, being sections four and eleven, "Relating to corporations, local liabilities and appropriations,"

For the proposed amendment to Article Eight, Part 2, section ten, "State appropriations."

For the proposed amendment to Article Twelve—"Oath of office."

For the proposed amendment, Article Fifteen, "Relating to cities."

For the proposed amendment, Article Sixteen, "Relating to official corruption."

For the proposed amendment, Article Seventeen.

Each of said tickets shall be counted as a vote cast for each proposition thereon not canceled with ink or pencil; and against each proposition so canceled; and returns thereof shall be made accordingly by inspectors of election and canvassers.

By order.

HIRAM CALKINS, *Clerk.*

REPORTS OF COMMITTEES

OF THE

CONSTITUTIONAL COMMISSION, GIVING THE REASONS FOR THE
ADOPTION OF THE SEVERAL PROPOSED AMENDMENTS.

ARTICLE II.

The committee on the first and second articles of the Constitution, in pursuance of a resolution adopted by the Commission, on the 26th February last, submit this their report setting forth the reasons which induced the adoption by the Commission of the proposed amendment to *section one of article two*.

First. The *first section of the second article* of the Constitution prescribes the terms during which the citizen offering to vote must have been "an inhabitant of the State," and a "resident of the county," but does not require a residence for any particular period of time in the *election district* in which he may offer his vote.

By the proposed amendment, a residence in the election district for thirty days next preceding the election is required. This provision will, it is believed, tend to secure the integrity of elections by preventing the fraud of merely nominal changes of residence, which are often resorted to for the purpose of electing candidates, in particular localities, by the votes of persons who are not *bona fide* residents of the districts in which their ballots are cast.

Second. The proposed amendment also includes a provision that the person entitled to vote may cast his ballot "upon all questions which may be submitted to the vote of the people of the State."

This provision is deemed proper, inasmuch as the original section declares the right to vote only in respect to "officers" elective by the people, but contains no provision authorizing a vote on "questions" to be submitted.

Third. The original section preserves to the elector his right, in time of war, to vote when absent *from the State* in the military or naval service of the *United States*.

The proposed amendment further protects the right of suffrage when the elector may be so engaged in the military service of the

State and when absent, on either service, not merely from the State but from his own *election district*.

The case may arise of State troops being called to the frontier in the immediate service of the State, and, whether in the service of the State or of the United States, they may, of necessity, be stationed and detained at points within the limits of the State, remote from their own election districts. Their inability to cast their votes at the polls would be as absolute if they were thus serving within the State as if they were beyond its bounds. The amendment, securing their rights of suffrage, if in such military service, beyond their electoral districts, effectually protects it in either case.

Fourth. A slight change has been made, for the sake of clearness, in the order of the words of the original section, respecting the return and canvass of votes.

Fifth. The words "or otherwise," at the end of the original section, are stricken out by the amendment, as the Commission could not foresee any contingency in which the votes of absent soldiers should be returned, or canvassed, elsewhere than in their proper election districts.

Sixth. The Commission have further amended the said first section of article two, by striking out therefrom all that relates to voting by persons of color, the same being superseded by changes in the Federal Constitution and laws.

All which is respectfully submitted.

March 10, 1873.

BENJAMIN D. SILLIMAN.
GEORGE B. BRADLEY.
SAMUEL W. JACKSON.
ROBERT H. PRUYN.

The committee on the first and second articles of the Constitution, in pursuance of a resolution adopted by the Commission on the 26th February last, submit this their report, setting forth the reasons which induced the adoption by the Commission of the proposed amendment of *section two* of article two, and also the proposed amendment of *article twelve* :

First. The original second section of the second article provides, in general terms, that laws may be passed excluding from the right of suffrage persons guilty of bribery, and for depriving those inter-

ested in bets or wagers on the result of elections from the right to vote thereat.

The proposed amendment contains a stringent provision excluding from the right to vote all persons guilty of bribery, whether directly or indirectly, or of corruptly influencing votes. The language used is so full and so explicit that it is believed that no evasion will be found practicable.

The amendment further makes such offenses a ground of challenge, and prescribes the oath to be taken on such challenge.

Second. In connection with this amendment, and as specially proper in case of its adoption, the Commission has deemed it expedient to recommend an amendment to the twelfth article of the Constitution. That article prescribes the oath to be taken by the officers chosen by appointment as well as by those therein referred to who may be chosen by the election. As the provision against bribery is intended to apply alike to the elector and the elected, it appeared to the Commission proper that the oath of office should be so framed that, while the oath now required shall be taken as before, there shall be added thereto, in the case of elected officers, the new clause provided by the amendment.

All which is respectfully submitted.

March 10, 1873.

BENJAMIN D. SILLIMAN.
GEORGE B. BRADLEY.
SAMUEL W. JACKSON.
ROBERT H. PRUYN.

ARTICLE THREE.

Your committee number two on the organization of the Legislature, respectfully report, in obedience to your directions, the reasons which induced the proposed change in the construction of the Senate. The Assembly is left as organized by the present Constitution.

Experience has shown that our statute book is every year becoming more and more burdened with laws which apply only to narrow localities, which laws are, for the most part, unnecessary; are often erroneous in principle and are generally mischievous in this respect; that the laws are made to vary in their application to different parts of the State. Some protection has been afforded, of late years, against this tendency, by a very extensive use of the veto power of the Governor. This, it is obvious, cannot afford sufficient protection, for the

reason that it is a physical impossibility for one man to review thoroughly the great mass of bills which are, in the short space of four months, submitted to him. The Governor, being elected by the whole people of the State, is enabled, in reviewing legislation, to free himself from dependence upon mere local opinion or exclusive regard to local interests. It is necessary that there should be a reviewing power in addition to his, which shall, to some extent, be like him, free from mere local influences. This reviewing power must necessarily be found in the Senate. A second house is useless unless it can act as a check upon the other. In order to make the Senators free from too narrow a local influence and so to enable them to look upon bills submitted to them with reference to the general interests of the State, it is proposed to give to them a much larger constituency than heretofore. The State is divided into eight great sections, each of which is more or less bound together by a community of business interests. The selection of one Senator from each of these districts every year, with a term of four years, presents the following advantages: The choice of men, to this important office, will be made by a much larger portion of the people, and therefore will be more wisely made. The office will be one which the ablest and most experienced men in the district will be willing to compete for and to accept. There will always be in the Senate a large proportion of members who have had experience in its proper work; who will have a knowledge of recent legislation, and will be prompt to see any inconsistency between bills submitted to them and previously enacted laws, and who will save us from the great evil, now so common, of laws enacted one year, repealed the next, and revived again the third year—a state of things bewildering to the great mass of the people, whose interests and comforts suffer by these rapid and needless changes. In any sudden change of the politics of the State, the minority will still have, in one house, a representation powerful to restrain unjust and oppressive legislation, and violent and unwise changes in public policy, until the people have had time to mature their judgment. In a word, the proposed organization of the Senate will tend to impart to our legislation a quality it much needs, to wit: steadiness.

The Senate districts, as now proposed, are made permanent. The usual provision for reorganizing them, after every enumeration of the inhabitants of the State, has been purposely stricken out, so that each of the great sections comprised now in a Senate district will always, whatever the comparative growth of other sections, have an

equal representation in the Senate. This valuable concession to the country districts was made on motion of a New York member, and acquiesced in by the representatives of the great growing counties of New York and Kings. The Senate districts, as now proposed, contain each, very closely, an equal population of about a half million. They start with equality of population and representation, but, in the future, however unequally population may be distributed, the districts of large territory, but of slower growth, will be enabled, by equal numbers in one house, to protect themselves against possible oppression under the mere domination of numbers in the lower house, and in the choice of the executive, and consequently against the unchecked sway of one section of the State. It is a recognition of the same principle, in a modified form, which led to the formation of the Senate of the United States.

JNO. D. VAN BUREN.

E. W. FOSTER.

CYRUS E. DAVIS.

The committee (number three) on the privileges and powers of the Legislature, general and local legislation, its forms and safeguards, having been directed to report to the Commission the substance of the reasons which governed the committee and the Commission in preparing and adopting the report, now ready for the consideration of the Legislature, beg leave to state:

1st. That the experience of the Legislature and the judgment of the people have, for many years, demonstrated the necessity of less local legislation, and the wisdom, wherever it is possible, of requiring general laws to take the place of special acts. The number of special laws have been increasing from year to year, until three-fourths of the laws have become special acts. Many of these could be reached by laws already in existence, while all that is valuable in a majority of other enactments could be reached by laws of a general character. During the last year no less than eighty-four acts were passed relating to cities, and one hundred and thirty-four relating to villages.

Experience in other States, and particularly in the States of Indiana and Illinois, has demonstrated the feasibility of passing general laws upon a great variety of local subjects; and in this State, had the Constitution been mandatory upon the Legislature, to pass general laws upon the subjects named in the accompanying article, instead of permissive merely, the amount of legislation would have been reduced

one-half in quantity, leaving far more time to devote to the general laws and interests of the State.

2d. It is proved beyond question, that the members of the Legislature cannot have the time, and are not furnished with the information necessary for intelligent legislation, in regard to all the counties, towns, and other interests of the State. Though the sittings of the Legislature are nominally one hundred days, they do not actually exceed an average of sixty-five days in each year.

In these sixty-five days, very often four thousand pages of printed folio matter are reported, in some twelve or thirteen hundred bills. Single committees have had before them in a single year as many as three hundred and sixty-seven bills, and this, according to a statement of the chairman of the judiciary committee of the present Assembly, was the precise number before the Assembly judiciary committee in 1872. On the same authority, it is stated that almost three hundred acts of incorporation are passed each year. To state the magnitude of the evil seems to the undersigned sufficient to suggest the remedy now recommended by the Commission, created in part by the Legislature which are asked to remove it.

3d. If it is impossible for Senators and members of Assembly, in their limited numbers, to understand in a becoming manner the character and effect of a thousand laws, most of them passed at a late period of the session, it is still more difficult for the Governor of the State, whose duty it is to sign and approve them. As many as four hundred bills have been left in the Executive Chamber at the final adjournment of the Legislature, besides the very large number vetoed or returned for amendment during the session.

4th. The multiplicity of laws is the source of hasty legislation, which, in its turn, is the cause of so much improper legislation. The many necessarily trust to the few, and the few composing the standing, special and sub-committees, to the one or more members representing a single county.

5th. In regard to the compulsory clause, both as to general and local enactments, your committee desire to state that without it the existing evils will continue.

The local pressure brought to bear upon members by selfish and interested parties is enormous and often irresistible. Let it be understood, that only general laws can be passed, and the temptation and pressure at once depart. It will then be understood that all that is just and for the public good can be secured without coming each year to the Legislature, to pass new acts or to amend old ones.

The quality of legislation will be improved, just as the quantity is reduced. There will be ample time for deliberation, as there will be, in the amendments suggested, ample protection for the State and its citizens.

Finally, your committee do not enter into an analysis of the several provisions submitted, for the reason of the brevity of the proposed new sections, and of the several subdivisions of the chief section presented. In this respect they speak for themselves.

They impose no limits whatever upon the powers of the Legislature, but simply declare that the Legislature *shall* pass general laws upon the subjects affecting all parts of the community alike.

ERASTUS BROOKS.

FRANCIS KERNAN.

H. V. HOWLAND.

CORNELIUS L. TRACY.

The committee on *local governments, other than cities*, beg leave to present the following among other reasons for the adoption of the sections in relation to the boards of supervisors:

At present there is no express provision in the Constitution authorizing these local boards, and their existence is entirely dependent upon the will of the Legislature. Important powers and duties are now devolved upon these boards, and doubtless their jurisdiction and power over matters affecting the local affairs of counties will be extended. It is but proper that a board clothed with such power should be recognized in the organic law of the State, and the Legislature required to provide for the election of these important local officers, and to provide for representation, according to population, if deemed expedient.

It was deemed expedient that the question of the creation of the office of "supervisor-at-large" should be determined by the Legislature, who could doubtless allow this officer to be chosen in such counties as desire it. If these boards of supervisors are to be clothed with important powers of local legislation, the propriety of having such an officer, who shall represent the entire county, must be evident.

The section requiring the Legislature to pass general laws conferring powers of local legislation and administration upon boards of supervisors, will tend not only to check many of the evils incident

to special legislation, but secure a uniform system throughout the State.

J. M. DUDLEY.

JNO. J. ARMSTRONG.

J. B. HALL.

ARTICLE IV.

The committee on Article Four relative to the Governor and Lieutenant-Governor, their powers and duties, present the following as the reason for the adoption of the amendments to that article by the Commission :

That, in regard to extending the term of office of the Governor and Lieutenant-Governor to three years, the commissioners believed that the change would be in accordance with general public sentiment, and would advance the interests of the State, by obviating too frequent changes in policy and offices, *and*, in some degree, *increasing the respectability and dignity of the offices*.

In fixing the salaries of the Governor and Lieutenant-Governor, and cutting off all perquisites and extra allowances, the Commissioners believed that the present *fixed* compensations to these officers were too low, and, therefore, it was proper to increase them. And, yet, though the proposition of the commissioners appears to be a considerable increase, it is not so in reality, for taking together the present fixed compensation, and the extra allowances and perquisites, for some time past received by these officers, they are greater in the aggregate than the salaries provided in the proposed amendment.

That, in limiting the action of the Legislature at extraordinary sessions, the commissioners believed that on such occasions it was unwise to engage in general legislation, and, therefore, it is proposed to confine the Legislature to the subjects recommended by the Governor.

That, in changing, in some respects, the effect of objections made by the Governor to bills and vetoes of bills of appropriation passed by the Legislature, the Commission considered that the practice of placing in one bill appropriations to a great number of objects in order to get a cumulative favorable vote for the whole, while many of the items, if standing alone, could not, probably, receive the sanction of the Legislature on their own merits, and that bills thus passed, must, as a whole, be approved, or as a whole rejected by the Governor; therefore the commission deemed it advisable that the

Governor should be allowed to approve of portions of such bills and return them with objections to the rest as to him may seem proper, when the Legislature may, as in case of other bills, reconsider, and, by a vote of two-thirds of the members of each House, pass the same notwithstanding the objections of the Governor.

And, that, in limiting the time in which the Governor may sign and approve bills, after the adjournment of the Legislature, to thirty days, the Commission believed it wise to put an end to the practice of approving of bills, by the Governor, for many months after the final adjournment of the Legislature, whereby, for a long time, important questions might be left in doubt and uncertainty, and be the occasion of much mischief.

BENJAMIN PRINGLE,
LORENZO MORRIS,
LYSANDER FARRAR,
J. F. HUBBARD, JR.,

Committee.

ARTICLE V.

The committee on Article Five, or the State officers, beg leave to report :

Article five of the existing Constitution provides for the election of all the principal State officers, and at a different time from that when the Governor is elected. This separates them from all connection with the Governor, and makes them in every way independent of him, and frequently of different political opinions. He has no responsibility for their selection, nor for the manner in which they may administer their respective departments of Government. Nor can he rely upon them for confidential consultation and advice in the discharge of his own duties.

The amendments proposed to the article are intended to remedy, and, it is believed, will remedy these manifest evils.

They provide for the appointment by the Governor, with the consent of the Senate, of the Secretary of State, the Attorney-General, and the State Engineer and Surveyor. They also provide for the election of the Comptroller at the same time with the Governor, and for the election of the Treasurer by the Legislature, and all the officers above named are to hold their offices for the same term as the Governor.

Thus he will be directly responsible for the appointment of a majority of said officers. All of them will generally be of his own politi-

cal faith, and he will be able to rely upon them as faithful counselors and assistants in administering the affairs of government.

At the same time, the people will be able to hold him responsible for any misconduct on the part of the officers appointed by him. The government will thus have, as it should, an efficient and accountable executive head.

The amendments also provide for the appointment, by the Governor and Senate, of 'one Superintendent of State Prisons, to hold his office for five years, but removable at any time for cause. The office of Inspector of State Prisons is abolished.

It is generally conceded that the management of the prisons by a board of inspectors has been a disastrous failure. Under the change proposed, the Superintendent will be at all times directly responsible to the Governor, and he to the people, for the proper and faithful discharge of the important duties pertaining to this branch of the public service.

The Commissioners of the Canal Fund are abolished, for the reason that there is no longer any use for them. The few duties which the law has left for them are devolved upon the Comptroller.

Some slight changes have been made in the Constitution of the Canal Board and the Commissioners of the Land Office, the propriety of which will be sufficiently obvious without comments.

LUCIUS ROBINSON,
E. W. LEAVENWORTH,
JNO. J. ARMSTRONG,
JONAS M. PRESTON,

Committee.

The committee on canals having been instructed to state the reasons governing the commission in adopting the various amendments to articles five and seven of the existing constitution, hereinafter mentioned, do report as follows :

First. By sections six, seven, eight and nine of article five, a new system of management is provided for the canals. The offices of the Canal Commissioners are abolished, and in their stead, but with more ample powers and a more direct responsibility, is substituted that of a Superintendent of Public Works. In harmony with the general scheme for the selection of the chief subordinate officers of State recommended by the Commission, this officer is to be appointed by the Governor, with the consent of the Senate. He may be removed by the Governor at any time when, in his judgment, the public

interest shall so require. The only limitation upon this power of removal is in the requirement that the Governor shall file with the Secretary of State a statement of the cause of such removal, and report the same to the Legislature at its next session. This, it is thought, will guard against the removal of a good officer capriciously, or for merely political reasons, while, at the same time, the Governor will be enabled promptly to depose an incompetent or corrupt officer without the delays of a trial or the necessity of proving the malfeasance, of the existence of which there may be no real doubt, but which it may be nearly or quite impossible to establish by legal evidence.

The Superintendent of Public Works is to appoint not more than three assistants, who are to hold their offices for three years, subject to the like power of removal by him. In case of any such removal, the cause thereof is to be at once reported to the Governor. The Superintendent of Public Works is to be a member of the Canal Board.

The defects of the present system of canal management are well known and have been long felt. In attempting to remedy them the Commission has endeavored to provide a system, as near as practicable, like that which would be adopted by a great private corporation. When important executive duties are to be performed, concentration of responsibility tends greatly to produce efficient and careful action. Where but one head is needed, that one is much better than three. The canals of this State are, in effect, a unit. Bad management upon one of them is felt immediately by all the others. There should, therefore, be one directing mind in charge of them all.

Under the present system the responsibility is divided between three Canal Commissioners and the Canal Board, and the Governor has no responsibility whatever in relation to them.

By that here recommended the responsibility is thrown first upon one efficient head, the Superintendent, and, ultimately, upon the Governor.

By the proposed amendment to section six of article seven, it will be seen that the constitutional prohibition of sale or other disposition of any of the canals of the State, is removed, except as to the Erie, Champlain, Oswego and Cayuga and Seneca canals.

The reasons which have induced the Commission to adopt the amendment will be found at length in the report submitted to this Commission by the committee *on canals*, to which, with the accompanying very instructive statistics, we beg leave to refer.

An amendment is proposed to section three of article seven, as follows:

“No extra compensation shall be made to any contractor, but if from any unforeseen cause the terms of any contract shall prove to be unjust or oppressive, the Canal Board may upon application of the contractor cancel such contract.”

It is believed that this provision, while it is evidently just and equitable, will be of great value to the State. Many contracts have heretofore, been taken at prices known to be unremunerative, in the belief that, upon subsequent application to the Legislature, the prices would be raised. In this way the provisions of the present Constitution for letting contracts to the lowest bidder have been practically evaded, and by shrewd, not to say corrupt, management, great sums of money have been improperly obtained from the State.

The new section added to article seven, in order to maintain the inviolability of the sinking funds, is so explicit in its language, and so obviously just, that it needs only to be read in order to be approved.

SHERMAN S. ROGERS.
VAN R. RICHMOND.
ODLE CLOSE.
G. C. BURDETT.

ARTICLE VIII.

Committee No. 7, to whom was referred subjects relating to corporations other than municipal, having been required by a resolution of this Commission to state in substance the reasons for the adoption of the proposed section relative to Savings Banks and institutions for savings, respectfully state:

First. That within a comparatively recent period a great number of special charters have been granted to institutions under the name of Savings Banks, or institutions for savings, with capital stock, and stockholders interested pecuniarily in the conduct of the business of the institution, and in the profits to be derived therefrom, and without the proper and necessary limitations and safeguards as to the investment and security of the savings deposited with them, and allowing the business to be conducted very much in the manner of an ordinary banking business upon the savings deposited with them, with all the risks incident to that kind of business.

The result has been the failure of several of these institutions organized as above indicated, and the consequent loss of the savings of the comparatively poor and indigent people who make deposits of small savings, and who are least able to bear the loss.

This evil, in our judgment, is caused by the desire to make large dividends to stockholders (in which dividends the depositors of savings have no interest), and the inducement, with the view of making such dividends, is to take risks inconsistent with the safety and security of the deposits.

The commission have, therefore, recommended that all these institutions should be governed, as to their powers, rights and liabilities, by a general law, to which all should be made to conform. We have no doubt that the Legislature, in framing a law for this purpose, will provide all the necessary safeguards and limitations as to the investment and security of the savings deposited with these institutions, and thereafter such institution will, by force of this constitutional provision, be subject to the provisions of that general law.

Second. The Commission have not recommended that these institutions may be organized at will, under a general law, because, it is believed, the questions as to the necessity and propriety of such an institution, at any given locality, and the number of them, should be within the control of the Legislature, and that no such institution should be created without the express consent of the Legislature.

Third. The Commission have further recommended that these institutions should have no capital stock, and that the trustees shall have no pecuniary interest in their business, or receive any loan from their funds. The reason for this is to remove, if possible, all temptation to an improper use of their funds, and to prevent their engaging in and taking the risks of an ordinary banking business.

All which is respectfully submitted.

AUGUSTUS SCHELL.
JAMES M. DUDLEY.
B. R. JOHNSON.
A. B. WALDO.

The committee on *sectarian appropriations* beg leave to report the following reasons which governed the Commission in recommending the favorable consideration of a proposed amendment to article eight:

The manner in which moneys have been appropriated by the State

for charitable purposes for many years past, excepting those appropriated for State institutions, has been a cause for very general complaint throughout the State.

Without going into the details which may be found in the yearly volumes of the statutes, it is sufficient to say that they have been distributed to classes of the population, in very unjust proportions, and with very little reference, if any, to their respective numbers or wants.

They have also been distributed to the several parts of the State, without any reference to their population or their necessities—giving to some parts of the State, for many years in succession, large sums of money—while other localities have received comparatively little or nothing whatever.

When we reflect that this money is raised by direct taxation on every county in the State in proportion to the assessed value of its property, any such distribution, as above, is most manifestly unsatisfactory and unjust.

The State has been filled with complaints of this injustice, springing from each of these sources for many years.

There is also another ground of objection to this mode of distribution, in this, that the moneys are given to private corporations not owned or controlled by the State, which cannot superintend the expenditure of the money, or even control it, so far as to compel its use for the purposes for which it was appropriated.

Your committee are fully impressed with the belief that the proposed amendment will not seriously interfere with the great good accomplished by the Orphan Asylums, Homes for the Friendless, Hospitals and other charitable institutions, so freely scattered over our State. The Boards of Supervisors of the various counties and the Common Councils of the different cities, have all the power they have heretofore had to pay to each class of said institutions the most liberal compensation for the care and support of the different classes of unfortunates for whom they were designed; and should this source of support be insufficient, they have but to make their appeal to the charitable feelings of the community, and a generous response will always be the result. Such we believe to be the uniform experience of our citizens in every part of the State.

When the State yearly makes appropriations of money, our citizens are but the almoners of the State bounty; there is not only no charity in such expenditure of the money of the State, extracted by force from the unwilling tax-payer, but it has the most direct tendency to

extinguish in the human heart those kind and humane feelings which are developed and nourished in the bosom of the free and liberal giver.

We are fully persuaded that under the system which will grow out of this amendment, all our humane and charitable institutions will be as useful as they ever have been in the past, and the charity and liberality of our citizens will be greatly stimulated.

It is true that the amendment proposed by the Commission cuts off all gifts of money and all loaning of the credit of the State to all other associations, corporations, etc., but they are all subject to the same objection, and appropriations to them of the money of the State are liable to the same abuses. They must all stand or fall together.

All of which is most respectfully submitted, in behalf of the committee.

ALBANY, *March* 15, 1873.

E. W. LEAVENWORTH,
Chairman.

Your committee number seven, on the subject of local indebtedness, in pursuance of the resolution of this Commission requiring them to state the reasons in substance for the adoption of the section limiting the power of cities, counties and towns for contracting debts and appropriating their money or property to private enterprises, respectfully state that the reasons for this provision will be found in the statistics of local indebtedness, and the report accompanying the same, heretofore submitted by the committee on local indebtedness, to which we beg leave to refer.

Dated *March* 14, 1873.

AUGUSTUS SCHELL.
B. R. JOHNSON.
J. M. DUDLEY.
A. B. WALDO.

ARTICLE XV.

RELATING TO THE GOVERNMENT OF CITIES.

In compliance with the resolution of the Commission, the committee on municipal reform respectfully presents a brief statement of the considerations that induced the adoption of this additional article as one of the proposed amendments of the Constitution:

1. The Commission felt compelled to make an effort to secure municipal reform in consequence of the late development of astounding frauds in the government of the city of New York, and from the known tendency to demoralization in the government of other cities of the State. All efforts of the Legislature under the provisions of the present Constitution have failed to arrest this tendency. It was, therefore, deemed of vital importance to the good name and future welfare of the State, and especially of its cities, that some new safeguards should be obtained in the organic law. With the view of determining what constitutional provisions would be at once proper and best calculated to secure the needed reform, the nature and functions of municipal government were carefully considered. It was readily perceived that its proper and only sphere of usefulness is confined to a faithful supervision of the general interests of the city. These duties are few and simple. They consist, chiefly, in keeping the streets, avenues, parks and wharves in proper condition; in the preservation of order and in proper sanitary regulations; in the protection of property from fire and other hazards; in the assessment and collection of taxes, and in the adoption of such other local laws as may be deemed most conducive to the comfort and material welfare of the people, and to the growth and prosperity of the city. It will be seen that all these duties relate directly to the material interest of citizens, and to the care and preservation of property. Their proper performance cannot injuriously interfere with the civil or political rights of individuals, because these rights are under the safe guardianship of the State. In view of these facts, it is deemed clearly right under municipal government, to vest in the holders of property the power to check improper expenditures of money, and especially so when experience has shown that the whole body of electors have failed to secure honest and faithful officials. For these reasons the Commission has decided to recommend to the favorable consideration of the Legislature and the people section three of this article, which provides for a board of audit in each city, chosen by tax-payers, and clothed with power to restrain excessive taxation and the lavish or corrupt expenditure of money. The Commission confidently believe that, if it shall become a part of the organic law of the State, it will prove a most salutary safeguard against the late flagrant abuses in our municipal governments, and without abridgment of the true political rights of any citizen. It is not an untried experiment, though novel in form.

In our own State, for example, provisions are to be found in the

statutes relating to the government of villages, and to some cities, which vest tax-payers with power to control the amount of taxation for local purposes. The imperious necessity of some provision in the organic law, of the character herein proposed, is demonstrated by the alarming progress of debt and taxation in the commercial metropolis. During the last decade the public debt of the city and county of New York has increased about seventy-five million dollars, notwithstanding an increase in the annual taxation during the same period of nearly twenty million dollars; and yet but little of this vast outlay has been applied to permanent improvements. Unless this rapid progress toward insolvency and utter demoralization can be promptly checked, there are grounds for grave apprehension that much of the present capital and commerce of that city will seek other centers of trade less heavily taxed. Such a calamity would inflict irreparable injury. It could not fail to mar the prosperity of the entire State. Like evils, of a less aggravated type, are believed to exist in most of the other cities of the State. It is confidently believed, however, that the remedy proposed by the Commission will effect a radical and permanent reform.

2. The article confers on mayors of cities ample executive power. It provides that the mayor shall appoint, with the consent of the board of aldermen, the heads of subordinate executive departments, and vests him with absolute power to remove them for misconduct in office, or neglect of duty. It also authorizes him to investigate their acts, have access to their books, and to examine them and their subordinates under oath. With these ample powers over the departments, the mayor may be justly held responsible for the honest and efficient administration of every executive department. Heads of departments are also made responsible for the conduct of their subordinates, by conferring on them the power of removal.

3. In view of the increased security, for purity and economy in the government of cities, which it is believed cannot fail to result from the concentration of executive power in the hands of the mayor, and the power of financial control vested in the board of audit, it was deemed judicious to confer on cities enlarged powers of local government. This was regarded as eminently proper for two reasons: first, because the citizens of every locality are best informed as to their own wants, and their direct personal interest affords the safest guide to the proper remedy; and, secondly, because it will relieve the Legislature of a large share of the local bills with which it is now overburdened at every session. It was not deemed proper, however,

to embrace in these exclusive powers of municipal government the absolute control of its police force, or of its commercial and sanitary interests. These are features of State polity on which experienced legislators differ, and it was therefore determined to leave them subject to the control and to the judgment of the Legislature.

4. The article also provides that State legislation, in reference to cities, shall be by general laws. It is believed that this provision will afford much relief to the Legislature, by excluding the swarms of local bills now forced upon its attention at every session, many of which are prompted by personal interest, rather than to promote the public good.

March 15, 1873.

GEORGE OPDYKE,
Chairman.

ARTICLE XVI.

The committee (number three) *on official corruption* submit the article unanimously reported from the committee, passed by a large majority of the Commission (and also approved by the Constitutional Convention of 1867-68), after careful deliberation, now recommend the article to the favorable consideration of the Legislature.

The simple purpose of the proposed amendment is purity in office, by making it:

First. A felony for any person holding office under the laws of the State, who, except in payment of his legal salary, fees or perquisites, shall receive or consent to receive, directly or indirectly, anything of value or of personal advantage, or the promise thereof, for performing or omitting to perform any official act, or with the express or implied understanding that his official action or omission to act is to be in any degree influenced thereby.

Second. It is also provided that any person who offers or promises a bribe, if it shall be received, shall be deemed guilty of a felony, unless upon the prosecution of the officer receiving the bribe, he shall testify to the giving or offering the bribe, in which case he is not to be liable to civil or criminal prosecution therefor, and it is further provided that the person offering the bribe shall not be privileged from testifying in relation thereto upon any prosecution of the party bribed.

Third. The expense attending the prosecution of the charges against

State officers and members of the Legislature, within any county, and of receiving bribes by such officers, are made a charge against the State.

Fourth. Though there are forms of law to reach some of the provisions of this amendment, it is deemed best to incorporate the sentiment and purposes of the Commission in the organic law of the State. Bribery it will be seen is fully defined. Neither those who give nor those who take bribes are now punished, and both generally escape.

Fifth. The leading reason for the amendment is the inability in the past to procure witnesses capable of giving evidence of guilt. In one of the sections here presented, persons offering or promising bribes are required to testify. Wherever this principle has been incorporated in any State law or practice, the result has been most salutary, alike in revelations of guilt and in its punishment.

Sixth. The sections aim to reach all classes of State officers engaged in bribery, while inflicting no unreasonable punishment. The direct purpose is to overcome, in a practical way, a great public abuse, and the provisions looking to this end are brief in terms and effective for execution.

Seventh. The receiver of a bribe and one who offers a bribe are made amenable for an offense, which has become so common in the past as to demand every possible effort to prevent its repetition.

The Commission present this report to the Legislature and people, in the hope that certain exposure and punishment will follow so great a crime to the people and the State.

ERASTUS BROOKS.

CORNELIUS L. TRACY.

FRANCIS KERNAN.

H. V. HOWLAND.

The committee on final revision having carefully examined the work submitted to them, beg leave to report that the amendments to the Constitution adopted by the Commission, revised and amended, are herewith submitted, whereby it appears:

That no amendments are proposed to article one.

That amendments are proposed to sections one and two of article two.

That the amendments to article three are substitutes for sections one, two, three, four, five, six, seven and eight. That to sections

nine to fourteen, both inclusive, of that article no amendments are proposed. And that sections fifteen to twenty-six, both inclusive, are proposed as amendments to the last mentioned article, which include substitutes for sections fifteen, sixteen and seventeen of that article and sections thirteen and fourteen of article seven transferred.

That the amendments proposed to article four are substitutes for sections one, two, four, seven, eight and nine of that article, and that no amendments are proposed to the other sections thereof.

That the amendments proposed to article five, relating to State officers, are substitutes for all the sections of that article, except section eight thereof, which by the proposed amendment is numbered section twelve.

That the amendment to section eighteen of article six is the only one proposed to that article.

That the only sections of article seven to which amendments are proposed, are sections three and six. But the Commission have further proposed to amend that article, by transfer of sections thirteen and fourteen thereof to article three, and by adding two new sections, numbered thirteen and fourteen, thereto.

That the amendments proposed to article eight consist of an addition, by way of prefix, to section four, and by adding two new sections, numbered ten and eleven.

That no amendment is proposed to article nine.

That the only amendment proposed to article ten is an additional section, numbered nine.

That no amendment is proposed to article eleven.

That to article twelve, consisting of only one section, amendment is proposed by way of additional provisions.

That an amendment is proposed to section one, of article thirteen, rendered necessary in the event of the adoption of the proposed amendments to article three.

That no amendment is proposed to article fourteen.

That an additional article numbered fifteen is proposed, relating to government of cities.

That an additional article numbered sixteen, relating to corruption in office and bribery, is also proposed.

And that another article, numbered seventeen, is proposed, relating to the time when amendments approved by the people shall take effect.

Your committee have, as required, given some attention to the form of submission of the proposed amendments to the people, with

the view to suggestion by the Commission, in that respect, to the Legislature. And your committee herewith submit the forms of ballots, and the manner which the electors may, with facility, express their approval or disapproval of the several parts of the amendments, separately submitted. And the adoption of this plan is recommended.

GEO. B. BRADLEY.
SHERMAN S. ROGERS.
GEORGE OPDYKE.
JAMES M. DUDLEY.
A. B. WALDO.
E. W. LEAVENWORTH.

STEAM ON THE CANALS.

SECOND ANNUAL

Report of the Commission

Appointed by Chapter 868, Laws of 1871.

TRANSMITTED TO THE LEGISLATURE FEBRUARY 25, 1878.

ALBANY:
THE ARGUS COMPANY, PRINTERS.
1873.

STATE OF NEW YORK.

COMMISSION APPOINTED BY CHAPTER 868, LAWS OF 1871.

GEORGE B. McCLELLAN.

DAVID DOWS.

VAN R. RICHMOND.

GEORGE W. CHAPMAN.

JOHN D. FAY.

ERASTUS S. PROSSER.

GEORGE GEDDES.

WILLIS S. NELSON.

WILLIAM W. WRIGHT.

DANIEL CROUSE.

VAN R. RICHMOND, CHAIRMAN.

DAVID M. GREENE, ENGINEER, TROY, N. Y.

HENRY A. PETRIE, SECRETARY, ALBANY, N. Y.

STATE OF NEW YORK.

No. 71.

IN SENATE,

February 25, 1873.

REPORT

OF THE COMMISSION APPOINTED BY CHAPTER 868, LAWS OF 1871, ENTITLED "AN ACT TO FOSTER AND DEVELOP THE INTERNAL COMMERCE OF THE STATE BY INVITING AND REWARDING THE PRACTICAL AND PROFITABLE INTRODUCTION UPON THE CANALS, OF STEAM, CALORIC, ELECTRICITY, OR ANY MOTOR OTHER THAN ANIMAL POWER, FOR THE PROPULSION OF BOATS," FOR THE YEAR 1872.

ALBANY, *February 24th*, 1873.

Hon. JOHN C. ROBINSON,

President of the Senate:

SIR.—I have the honor to transmit herewith the report of the Commission appointed by chapter 868, Laws of 1871, entitled "An act to foster and develop the internal commerce of the State by inviting and rewarding the practical and profitable introduction upon the canals, of steam, caloric, electricity, or any motor other than animal power, for the propulsion of boats," for the year 1872.

Yours, very respectfully,

VAN R. RICHMOND,

Chairman.

R E P O R T.

ALBANY, *February* 20, 1873.

To the Legislature of the State of New York:

The Commission appointed by chapter 868, Laws of 1871, entitled "An act to foster and develop the internal commerce of the State, by inviting and rewarding the practical and profitable introduction upon the canals, of steam, caloric, electricity, or any motor other than animal power for the propulsion of boats," submit for the consideration of the Legislature the following

REPORT

Of the action of said Commission during the period that has elapsed since the date of their last report, together with a full account of all the experiments providing for the introduction of steam or any motor other than animal power for the propulsion of boats, made during the season of 1872, that have come to their knowledge and the conclusions to which they have arrived, from their investigation of the subject-matter committed to them.

At the first meeting of the Commission, held in 1871, the following resolutions were adopted:

Resolved, That for the purpose of carrying out the intent of the law, this Commission will require, among the tests to be made, that the several competitors shall make not less than three round trips, from New York and Buffalo or Oswego; each boat to be loaded with not less than 200 tons of cargo each way; the trips to be commenced as soon as any party is ready, and all completed in the least practicable time. For the purpose of determining the time consumed by each and all the trips, the clearance must show the day of the month and time of day that the boat passes each collector's office; certified copies thereof to be furnished to the Commission. In order to obtain information in regard to the practical working of the several devices in competition, as soon as practicable, the engineer of the Commission, Mr. David M. Greene, of Troy, will inspect the same from time to time, as in his judgment may be necessary, and report the facts obtained to this Commission.

Resolved, That competitors are hereby notified that for the purpose of carrying out the intent of the law, though it is desirable that the

three consecutive round trips from Buffalo or Oswego to New York be made at the earliest time practicable, the whole of the year 1872 will be allowed to such persons as may desire so much time, and the awards will not be made until the close of navigation in that year.

At a meeting of the Commission held at Albany on the 7th day of August, 1872, the foregoing resolutions were modified by the passage of the following resolution :

Resolved, That boats making the three round trips from Buffalo or Oswego to the Hudson river and return, as heretofore required by this Commission for the purpose of determining the rate of speed of said boats, will not be required to continue the trips to New York city, nor to carry more than 100 tons of cargo going west, and that deductions from the time consumed in navigating the canals will be made for passing the locks, equal to twenty hours for each round trip from Buffalo, and proportional allowance will be made if the trial is from Oswego. In case of delays growing out of obstructions to navigation, that are caused by breaks in the canals or injuries to the structures, or sunken boats, such as detain boats drawn by horses, the time lost will also be allowed for in computing speed.

At a meeting of the Commission held at Syracuse on the 1st day of October, 1872, the following resolution was adopted :

Resolved, That Commissioners Geddes and Chapman, together with the engineer, Mr. Greene, are requested to make a personal examination of the canals of New Jersey and Pennsylvania, or any other large canal, where steam is in use for the propulsion of boats, and to procure for the information of this Commission such facts as may bear upon the subject-matter intrusted to it by the Legislature.

The committee so appointed performed the duty assigned them, and have made a report of their observations and the information obtained, which is hereunto annexed. Attention is invited to this report, as giving much information in regard to the most important canals in the States visited, and to the whole subject of steam navigation.

The Delaware and Raritan canal, as it appears from this report of the committee, has a width of water surface of eighty feet, and an average depth of nine feet, except over some culverts where it is only eight feet four inches deep. The locks are 220 feet long and twenty-four feet wide.

These dimensions admit of the use of vessels that will carry 600 tons of cargo, and at various times larger boats have been constructed and used on this canal, but the committee were informed by John S. Hillis, Esq., of Philadelphia, formerly superintendent of this canal, that the result of his experience was, that a boat 110 feet long and twenty-three feet wide was as large as could be used with the greatest

economy. Boats of 140 feet in length and carrying 500 tons have been tried ; but on account of the extra expense of crew to meet the increased difficulty of management, were not found to be economical.

The committee say that "the largest horse-boats plying upon this canal can carry 450 tons ; but the average cargo that they do carry is about 210 tons."

These facts in regard to the best manner of using the Delaware and Raritan canal have an important bearing upon the feasibility and necessity of lengthening the locks of the Erie canal to 150 or 200 feet. While the locks on the Delaware and Raritan canal allow the use of boats of 600 tons carrying capacity, the boats on that canal do not in fact average as many tons cargo as the boats navigating the Erie canal.

With locks 220 feet in length and twenty-four feet in width, those best informed on the subject advise that boats should be built 110 feet in length and twenty-three feet wide, thus showing that greater width rather than greater length, is the form that boats would take upon the canals of this State, if the locks were enlarged and the prism of the canal widened.

It follows, therefore, that nothing would be gained by materially lengthening the locks, unless they were doubled in length, so as to allow two boats to be locked at once.

This Commission has received a full and able report from David M. Greene, Esq., civil engineer, appointed by this board, of all the trial trips of the several steamboats that have thus far competed for the prize, and, in addition thereto, he has given a very full statement of the facts relating to the navigation of the canals of Great Britain and the continent by the use of steam power. This report also embraces a large mass of important facts bearing upon the question of steam on the canals.

The Commission herewith submit Mr. Greene's report in the confident expectation that the information contained in it will be of great public interest, and may materially aid competitors in their future efforts to solve the problem that has so long engaged the attention of persons interested in the use and prosperity of our canals.

When this Commission entered upon the duties assigned it by the Legislature, its members were aware of the importance of the questions involved and the work to be done. They, therefore, adopted the resolutions hereinbefore recited, for the purpose of establishing a plan of preliminary trials of the several devices that might come before the Commission for consideration, which would practically test

their merits in many respects, and justify the Commission in undertaking still more critical and thorough trials before coming to a final decision.

Doubtless the plan of operations adopted by the Commission was a disappointment to all parties who supposed that the award would be made upon theories, models or plans, or at most upon a trial between competing boats, for a few days, under the most favorable circumstances.

But the Commission were of the opinion that the question was one involving many elements and demanding a practical solution. Before any award can be made the law provides "that the Commissioners shall be fully satisfied that the invention or device will lessen the cost of canal transportation and increase the capacity of the canals."

This offer made by the State has attracted great attention throughout the country, and has greatly stimulated invention. Many devices have been projected, and large sums of money have been expended in the construction of boats and machinery to compete for the award.

It will be seen by the engineer's report that a number of boats have actually entered for the contest, and that a portion of them have accomplished very gratifying results, which seem to indicate that great progress has been and can be made toward solving the problem of cheap steam navigation.

The talent, industry and enterprise already shown in the direction of cheaper transportation of freights, will prove of great value as well as a source of just pride to the people of this State.

But the report of the engineer will show that the boats that have made the best records did not finish the preliminary trial trips required until the month of November, near the close of navigation, which terminated the 28th of November, leaving no time or opportunity for the further tests and trials under the personal supervision of the commissioners, which were considered absolutely necessary to justify a decision.

Thus it appears that the time allowed by the law to practically test and examine the inventions or devices offered, has not been sufficient to enable the Commission to complete the duty prescribed, by coming to a final decision upon the matters before them. In accordance with these views the Commission, at a meeting at Albany, held on the 18th of February, 1873, adopted the following preamble and resolution:

Whereas, The preliminary trial trips, required by this Commission, of the several boats competing for the prize of \$100,000 offered by

the State of New York, in chapter 868, Laws of 1871, were not completed in time, before the close of navigation in the year 1872, to allow such further tests and examinations as are necessary to enable the Commission to determine whether one or more boats had complied with the conditions of the offer made by said law, therefore be it

Resolved, That the Commission do not make any award or grant any certificates upon the facts and information now before said Commission.

Many of the competitors are anxious for more time to be given them, and the Commission is strongly urged by them, and others interested in the matters involved, to recommend to the Legislature that the rewards offered be continued, and that further time be given by the State for the examination and decision of the claims presented under the law.

In the opinion of this Commission, the conclusions arrived at by the engineer in his report, herewith submitted, not only justify further investigation, but present strong reasons why the State should not now abandon the effort to make steam the principal power used on our canals.

This Commission would, therefore, recommend that the reward offered by chapter 868, Laws of 1871, be continued, under such form or Commission as the Legislature may deem proper, and in case it is so continued, that an appropriation be made, sufficient to defray the probable cost of time and expenses necessarily incurred in discharging the duties prescribed.

Respectfully submitted.

VAN R. RICHMOND,
DAVID DOWS,
GEORGE GEDDES,
WILLIS S. NELSON,

GEORGE W. CHAPMAN,
WILLIAM W. WRIGHT,
JOHN D. FAY,
DANIEL CROUSE,

Commissioners appointed by chapter 868, Laws of 1871.

REPORT OF COMMITTEE

APPOINTED TO

MAKE PERSONAL EXAMINATION OF THE CANALS OF NEW JERSEY, DELAWARE, PENNSYLVANIA, VIRGINIA AND NORTH CAROLINA, WHERE STEAM IS IN USE FOR THE PROPULSION OF BOATS.

HON. VAN R. RICHMOND, *Chairman.*

SIR.—The committee, which was appointed at the meeting of the Commission, held October 1st, at Syracuse, and directed to make personal observations upon several of the canals of New Jersey, Delaware, Pennsylvania, Virginia and North Carolina, for the purpose of ascertaining to what extent steam has been and is being used, together with the economy and efficiency of the same, having performed the duty assigned them, present the following

REPORT:

The committee left Albany on the 17th of October and returned on the 1st of November, having spent about two weeks in making the examinations and investigations directed to be made by the Commission.

The observations of the committee extended to the following named canals:

Delaware and Raritan, of New Jersey; Chesapeake and Delaware, of Delaware; Pennsylvania canal, of Pennsylvania; Schuylkill Navigation, of Pennsylvania; Chesapeake and Ohio, of Virginia; Albemarle and Chesapeake, of Virginia, and North Carolina.

These will be reported upon, in the order in which they are named.

THE DELAWARE AND RARITAN.

This canal, which forms a part of an interior line from New York to Philadelphia, extends from the city of New Brunswick on the Raritan river, to Bordentown on the Delaware, a distance of forty-

four miles. The distance from New York to Philadelphia, by this route, is one hundred and twelve miles, and is made up as follows :

New York to New Brunswick	40 miles.
New Brunswick to the Delaware river.....	44 “
Bordentown to Philadelphia.....	28 “
Total.....	<u>112 miles.</u>

The actual distance run is, however, about 120 miles.
This canal is eighty feet wide at the water surface, thirty-eight feet wide at a depth of six and a half feet, and has an average depth of nine feet, except on several culverts, where the depth is only eight feet four inches. The locks are fourteen in number, including a double outlet lock at New Brunswick, and are two hundred and twenty feet long by twenty-four feet wide.

There are six lines of steamers plying regularly between New York and Philadelphia, and passing through this canal. The dimensions and capacities of the largest of these steamers are as follows :

Length.	Beam.	Depth.	Custom-house measurement.	Real tonnage.
153 feet...	22 feet, 9 inches.....	8 feet.....	341 tons	375,000 lbs.
175 feet....	23 feet.....	8 feet, 3 inches.....	353 tons	430,000 lbs.
149 feet....	23 feet.....	7 feet.....	287 tons	400,000 lbs.
155 feet....	23 feet.....	8 feet.....	393 tons	400,000 lbs.

To the above is to be added 100,000 pounds for machinery and coal.

In open water these boats can make thirteen miles per hour ; but, in the canal, they are limited to four and a half miles per hour, and will pass through the forty-four miles of canal and the thirteen locks in fifteen hours ; making an average speed through the canal, including lockages, of three miles per hour. This limit imposed upon the speed, we were informed, was removed last spring. We were also informed by gentlemen engaged in the transportation of freight over this line, that the speed now varies from four miles on the canal proper, to five miles on the pools or wider parts of the canal. These speeds do not, so far as we could learn, injure the canal or its structures.

There are also smaller steamers navigating this canal and carrying about 120 tons. Among these are five steamers, which were orginally built for service on the Erie canal and Hudson river, by the Rome, Watertown and Ogdensburgh Railroad Company, in 1861. These steamers are ninty-seven feet long and seventeen feet beam. Their

limited carrying capacity is due to their model, which is that of the ordinary river and lake propellers.

All of these steamers are driven by the ordinary single screw. The smaller ones make the round trip in about fifty hours—the entire distance run being about 240 miles, on a coal consumption of five tons. The larger steamers burn about seven and a half tons, and all of them occasionally make a single trip in twenty to twenty-one hours. The crews comprise a captain, mate, two engineers and two men.

A large steamer carrying 200 tons, consuming seven and a half tons of coal during the round trip, and making a single trip in twenty-three to twenty-seven hours, will, with an additional consumption of three tons of coal, tow a barge carrying 300 tons. In this case, however, the time of a single trip is increased to from twenty-seven to thirty-three hours, three hours of the additional time being consumed in locking. The time consumed in locking the single steamer is one and a half hours; that consumed in locking the steamer and barge is four and a half hours. These facts, obtained from an intelligent gentleman of large experience in connection with this canal, have an important bearing upon the question of the economy of towing a number of boats at the same time, by a single steamer or tug.

The largest horse-boats plying upon this canal can carry 450 tons; but the average actual cargo is about 210 tons. They are $144\frac{1}{2}$ feet long, twenty-two and eight-tenths feet wide and eight feet deep.

There are a number of barges carrying 320 tons of coal; and one which carries 430 tons. These boats, loaded, and carrying from 200 to 350 tons, are towed at an average speed of two miles per hour. When light, the speed between locks is about three miles per hour. The charge for towing, in the case of horse-boats, is three and three-tenths mills per ton per mile, and the cost of maintaining, manning and equipping the mules is one dollar per day, per head. Boats carrying under 250 tons are towed by four mules; those carrying over 250 tons, by eight mules.

If we take a boat carrying 200 tons, towed by four mules, at an average speed of two miles per hour between locks, it may be assumed that the entire length of the canal will, as an average, be made in twenty-four hours. The charge for towing will be $3\frac{3}{10} \times 200 \times 44 = \29.04 , or sixty-six cents per mile. If the animals be worked half the time, the *cost* of towing this boat will be cost of eight mules, with their drivers, for one day, or eight dollars. The cost per ton per mile will therefore be $\frac{8000}{200 \times 44} = \frac{9}{10}$ of a mill.

The precise cost of the movement of freight by steam on this canal cannot be estimated, as none of the steamers are confined to the canal. However, gentlemen abundantly qualified to judge give it, as their opinion, that the relative economy of steam and animal power is at least as two to one.

The committee are indebted to Mr. John S. Hillis, of the firm of W. P. Clyde & Co., of Philadelphia, formerly superintendent of the Raritan and Delaware canal, and to Mr. C. B. Rossell, the present superintendent, for most of the foregoing information. The first named gentleman stated, as the result of his experience, that the most economical boat or barge for this canal is 110 feet long by twenty-three feet three inches wide, carrying 300 tons. Boats 140 feet long and carrying 500 tons have been tried; but, on account of extra expense of crew to meet the increased difficulty of management, were not found to be economical.

CHESAPEAKE AND DELAWARE CANAL.

This canal extends from Delaware city, on the Delaware river, to Chesapeake city, on the Chesapeake bay, a distance of thirteen and one-half miles. There are three locks; two at the termini, and one, of twenty feet lift, at St. George's, four miles from Delaware city. These locks are 220 feet long and twenty-four feet wide.

The northern level consists of three miles of canal proper, and one mile of pool; while on the southern level there are six and one-half miles of canal and three miles of pool. The canal proper is nine feet deep and about ninety feet wide, except through the deep cut, where, for about three miles, it is only sixty feet wide. Along the pools the width varies from that of the canal to 250 or 300 feet.

Steamers, carrying both passengers and freight, plying between New York and Baltimore, and between Philadelphia and Baltimore, pass through this canal. Towing is performed by both steam and animal power, and is in the hands of Messrs. G. F. Brady & Co., who own three steam tugs and the requisite number of mules. Steam has been in use for towing for about nineteen years, and is found to be more economical than animal power. The latter is, however, found to be convenient, if not necessary, as an auxiliary, especially in assisting at the locks.

The tugs are driven by single upright cylinders, 18x18 and 17x17, which are rated at forty-five horse power, and are able to tow a train of six boats, each carrying 250 tons of cargo, making an aggregate of 1,500 tons. The average speed attained is two miles per hour, though

a speed of two and one-half miles is maintained between locks. Teams are employed to assist the boats in their passage through the locks, and the time expended in locking a train of six boats and the tug is an hour and a half, or about thirteen minutes per boat. The coal consumption of the tugs varies from two to three tons in twenty-four hours, depending upon the service. The crew consists of six men, and the average daily running expense is estimated by Mr. Brady at twenty dollars per tug, exclusive of interest upon investment and maintenance of boats.

The charge for steam towing, for boats about the size of our Erie canal boats, is eleven dollars per trip, which includes the towing of the empty boats on the return trip. The charge per boat per mile is

therefore $\frac{1100}{13.5} = 81\frac{1}{2}$ cents, including the return of the light boat,

while the charge per ton per mile amounts to $\frac{11000}{1500} = 7\frac{3}{10}$ mills.

Were the boats loaded both ways, the charge would not differ much from five mills per ton per mile.

The *cost* of this movement per ton per mile may be estimated approximately as follows: Taking the cost of the tug at \$16,000, its lifetime at fifteen years, and assuming the season of navigation to be 300 days, the daily cost for maintenance and interest may be put at \$7 47

Coal, oil and waste 13 53

Wages of crew 9 00

Board of crew 3 00

Total \$33 00

The full daily duty of a tug and its crew may be put at two round trips, equivalent to the movement of 3,000 tons thirteen and one-half miles, and the return of the empty boats. The cost per ton per mile of such movement will therefore be $\frac{33000}{3000 \times 13\frac{1}{2}} = 0.815$ of a mill.

This estimate assumes, of course, that the tugs are continually worked to their full capacity. In fact, they are not worked to full capacity, and for that reason the daily expense, except for coal, being a constant quantity, the actual cost of movement, under the conditions which obtain on this canal, must be somewhat greater.

Boats of 210 tons, towed by three mules or horses, make about two miles per hour, and make the trip in about seven hours. The charge for this service is \$5.25 for a single team of three mules, or \$7.25 for a double team of six mules. The empty boats returning within thirty

days are towed without charge. The charge, therefore, per ton per mile, for mule towing, with a single team, is $\frac{5250}{210 \times 13\frac{1}{2}} = 1.85$ mills

and for a double team $\frac{7250}{210 \times 13\frac{1}{2}} = 2.56$ mills.

The cost of this movement can only be estimated approximately. It is no doubt entirely fair to put the daily duty of a team of three mules at a single round trip, or the movement of 210 tons thirteen and one-half miles, and the return of the empty boats, and the daily cost at three dollars, or one dollar per day per mule. The daily duty of a double team may be put at one and one-half round trips, or 315 tons moved thirteen and one-half miles, at a cost of six dollars. Upon these assumptions the cost per ton per mile will be:

For single team, $\frac{3000}{210 \times 13\frac{1}{2}} = 1.05$ mills.

For double team, $\frac{6000}{315 \times 13\frac{1}{2}} = 1.41$ mills.

The duty of a double team has obviously been over estimated, as, other things being equal, the cost will vary as the square of the speed.

It is to be remembered that, in these estimates, we have been considering merely the question of *towing*, and that the total cost of transporting freight, made up as it is of this, together with other elements, must be quite a different matter.

Our estimate indicates that steam towing on this canal is $\frac{1.05 - 0.815}{1.05} \times 100 = 22$ per cent cheaper than animal towing. Mr.

Brady gives it as his opinion that steam is *one-third* cheaper than animal power. The measure of economy will, of course, differ under different conditions.

No effort is made to estimate the total cost of freight movement, under the actual conditions of traffic, upon this canal. Forming, as it does, part of a route made up very largely of river and bay navigation, over which the business is of a mixed and variable character, it would be very difficult to arrive even at an approximation to the cost over the entire route, and still more difficult to estimate the cost over the canal alone.

An opportunity having been afforded here, through the courtesy of Mr. Brady, who placed a tug at our disposal, experiments were made for the purpose of ascertaining the effects of different speeds upon the water. The tug, which was of large size, drew about seven

feet of water. It was run about thirty-five feet from the towing path, so that, upon one side, the conditions would be nearly the same as in the case of a boat moving at the same rate of speed on the Erie canal. Mile posts upon the towing path served to indicate the speed.

The boat was first run at a speed of five miles per hour. The disturbance of the water, caused by a strong north-east wind which was blowing at the time, was not sensibly increased by the passage of the boat.

The speed was next increased to six miles per hour. At this speed the water along the towing path rose and fell about five inches, without, however, being attended by any violent action or wash.

Finally, the speed was increased to seven and one-fourth miles, when a wave or swell twenty inches high was formed, rising nearly to the top of the bank.

These results indicate that, upon this canal, the proper limit of speed is about six miles per hour. This speed is found to be necessary during the passage of boats or tows exposing a large surface to the action of a strong wind blowing athwart the canal. During the prevalence of such winds, boats running light, or having extensive upper works, are found to be unmanageable at a lower rate of speed.

PENNSYLVANIA CANALS.

The main line of the Pennsylvania Canal Company's canals extends from Havre-de-Grace to Wilkesbarre, a distance of 196 miles. The old canal was forty feet wide at the water line, twenty-eight feet wide at the bottom and four feet deep. The locks are thirty-six in number, and are seventeen feet by ninety feet.

This line is being gradually enlarged to a width of fifty-five feet on top, thirty-four feet at the bottom, and to a depth of six feet three inches. The enlarged locks are seventeen feet wide by 182 feet long, and are provided with a pair of gates midway between the end gates. The object of this last arrangement is to provide for locking two boats at a time whenever occasion requires, and to avoid an unnecessary expenditure of water when a single boat is locked.

Wiconisco Branch—Extends from Clark's Ferry dam to Millersport, twelve miles; surface width forty feet; bottom, twenty-eight feet; depth, four and a half feet; locks, six in number, seventeen by ninety feet. This branch leads directly to the coal fields.

Juniata—One hundred and twenty-seven miles long; width at surface of water, thirty-eight feet; at bottom, twenty-eight feet;

depth, four feet; locks, six in number, seventeen feet by ninety feet.

West Branch of the Susquehanna—Extends from Northumberland to Queen's Run, a distance of seventy-three miles; width at surface of water, forty feet; at bottom, twenty-eight feet; locks, twenty-six in number, seventeen feet by ninety feet.

Steam has been in use on these canals since 1861, in which year a steamer was built to transport materials to be used upon repairs and in the enlargement. This steamer carries seventy-five tons, and tows a barge carrying ninety-five tons, making a speed of two and a half miles per hour on the canal. The machinery of this boat consists of two upright cylinders, ten by twelve, driving each a screw of three feet diameter and about six feet pitch. The boiler has fourteen square feet of grate, and the coal consumption is from three-quarters of a ton to one ton in twelve hours. The boat has been in constant use ever since it was built, and is thought, by the canal officers, to possess decided advantage over horse-boats for its purpose.

A second steamer, called the "New Era," was built in 1864, and has continued to run until the past season, 1872. The "New Era" is eighty-four feet long, fifteen feet four inches wide, and carries eighty tons, besides towing a barge carrying 110 tons, at a speed of two and a half miles per hour. She has two cylinders, ten by fifteen, and two screws of four feet diameter and eight feet pitch. Five or six men are required to man the steamer and barge. From July, 1865, to the close of November of the same year, the net earnings of the "New Era" amounted to \$900. There were no return freights. From 1864 to 1869, the annual net earnings of this steamer ranged from \$600 to \$1,200.

Both these boats are owned and run by the Canal Company, and an accurate account has been kept with each.

On the Juniata canal a steamer has been running for six years, and is represented by her owner to be a profitable boat. She is eighty-four feet long, fourteen feet wide, carries sixty tons, and tows a barge carrying seventy-five tons at a speed of two and a half to three miles per hour. This boat has a single engine, with cylinder fourteen by fifteen, and a screw of five feet diameter. Grate surface about fourteen square feet.

The steamer "A. G. Nichols" is eighty-four feet long, fifteen feet and four inches wide, carries eighty tons, and tows a barge carrying 100 tons, at a speed of three miles per hour. This average speed is that over 175 miles of canal and sixty miles of bay and river navigation,

including thirty-five locks. Her machinery consists of two vertical engines, having cylinders eight by twelve, which drive two screws three and a half feet diameter.

The steamer "Admiral," built in 1868, was supplied with a single engine sixteen by sixteen, and a screw five feet in diameter. The boiler has fourteen square feet of grate and consumes three-quarters of a ton of coal in twelve hours when towing a barge. The net earnings of the "Admiral," for a single season, have reached \$1,800. No return freights.

None of these boats disturb or injure the banks of the canal.

Messrs. Thomas F. Wierman, Chief Engineer, and A. J. Whitney, principal assistant, to whose courtesy we are indebted for the foregoing information, expressed the opinion that all these steamers would be found to be permanently profitable if cargoes could be secured for them and competent men found to run them. It was found impracticable to procure information more in detail than that which Messrs. Wierman and Whitney furnished us. Indeed, it was scarcely necessary, as the information obtained covers all the vital questions involved. For example, we have learned that, on the narrow and shallow canals of Pennsylvania, at a moderate expense, and with the ordinary means, steamers have attained the speed we require upon the Erie canal while carrying and towing a paying cargo. The details of the machinery by which this has been and is done are of minor importance.

SCHUYLKILL NAVIGATION.

This line follows the Schuylkill river from Philadelphia to Port Carbon, a distance of about 102 miles. One-half the distance is canal proper, and one-half river-pools. In the canal the width is sixty feet at the water surface, and the depth six and one-half feet. In the pools the width is in some places 300 feet. The bottom width of the canal is from forty to forty-five feet. The locks are fifty-eight in number, and are 110 feet long by eighteen feet wide. Boats draw five feet three inches of water and carry 180 to 190 tons.

Towing is done by mules, and the time required to tow a loaded boat down, over 102 miles, is about three days. This indicates an average speed of 1.41 miles per hour, or about the speed habitually made by horse-boats on the Erie canal.

To accomplish this movement of 190 tons 102 miles, six mules are required for three days, at a cost of eighteen dollars. The cost per boat per mile is, therefore $\frac{1800}{102} = 18$ cents, and the cost per ton per

mile = $\frac{18000}{19290} = 0.93$ of a mill. In consequence of the boats having to be towed up—for the greater part—empty, the actual cost of towing must be considerably greater.

Steam has never been used on this line, except in a single instance, where a tug was employed in towing upon the principal pools. This canal is now leased by the Philadelphia and Reading R. R. Co., and the early introduction of steam is contemplated by that corporation.

CHESAPEAKE AND OHIO CANAL.

The committee visited this canal at Georgetown, D. C., but were unable to learn that steam has ever been used, except upon small passenger boats plying between Georgetown and Point of Rocks (?) a distance of about forty miles. These steamers are limited to a speed of four miles per hour; but they sometimes make six miles. This canal is of about the same width and depth as the canals of Pennsylvania. No information was gathered as to the cost of freight movement on this canal.

ALBEMARLE AND CHESAPEAKE CANAL.

This canal is part of an inland route between Norfolk, Virginia, and points on Albemarle sound. The total length of canal proper is fourteen miles; of this, eight and one-half miles, extending from the head of Elizabeth river to the head of North Landing river, lying in Virginia, and five and one-half miles, extending from Currituck sound to the head of North river, lying in North Carolina. The prism of the canal is seventy feet wide at the top and seven feet deep. It has one lock 220 feet long and forty feet wide.

The banks of the canal are entirely without protection, except such as is afforded by vegetation. It was designed and built expressly for steam navigation, and all boats passing through it are either propelled or towed by steam power.

The canal has been in use ten years, and during that time over 35,000 vessels have passed through it. Fifty-two different steamers have passed through this canal during the last year.

The canal company have had three tugs in use for towing purposes. These tugs are able to tow 1,000 tons at a speed of four miles per hour. The speed attained by steamers varies from three to six miles per hour.

Towing has not, as yet, proved remunerative, for the reason that

the tonnage of the canal requiring towage, is not yet sufficient to afford constant employment for the tugs.

Bushes and other vegetation growing on the banks are found to afford a tolerable protection against the abrasion or wash resulting from the slight disturbance of the water caused by passing boats.

The committee take pleasure in acknowledging the polite attentions shown them by the Hon. Marshall Parks, President of the Canal Company, who offered every facility for the prosecution of their investigations; also to President Franklin Gowen, of the Philadelphia and Reading Railroad; to C. W. Wharton, Superintendent, and to Chief-engineer Smith, of the Schuylkill navigation, who extended every desired courtesy.

Respectfully submitted.

GEORGE W. CHAPMAN,
GEORGE GEDDES,
D. M. GREENE, *Engineer,*
Committee.

SECOND ANNUAL REPORT

OF

ENGINEER OF COMMISSION APPOINTED BY ACT CHAP. 1868, LAWS
OF 1871, OF THE STATE OF NEW YORK, FEBRUARY 18, 1872.

HON. VAN R. RICHMOND, *Chairman*:

SIR.—I have the honor to report the results of my observations upon and deductions from the performances of the several steamers competing, during the past season, for the reward offered by the State of New York for the successful and economical introduction of steam, as a motive power, upon our canals.

At the date of my last report it was hoped and expected that, upon the opening of navigation in the spring of 1872, several steamers would be ready to enter promptly upon the three trial trips, required by the resolution adopted by the Commission at its meeting at Syracuse, on the 14th of August, 1871.

It was supposed that competitors having had a full year in which to mature their plans and to make the necessary arrangements for their trial, and knowing that a single season only remained during which such trial could be had, would make every effort to avail themselves of the entire season, for the purpose of satisfying the Commission of the relative merits of their several inventions, plans or devices.

For a variety of reasons, however, among which may be mentioned the difficulty experienced by some of those desiring to compete, in procuring the requisite means with which to develop their plans, the delays incident to the construction of special machinery for a novel application, and the very general desire to first make private experiments and tests; for these, and other reasons, no boats, with a single exception, were formally reported ready for trial until late in August.

At this time, only three months of the season of navigation remained; and therefore it could not reasonably be expected, in view of the contingencies likely to arise in the use of new and untried machinery, and in view of the general inexperience of the competitors in canal

navigation, that the three preliminary trips would be accomplished much before the close of navigation, if, indeed, they could be accomplished at all.

Thus it has happened that only three steamers have succeeded in fully completing the three round trips between Buffalo and Troy. These are the "Port Byron," of Rochester; the "William Newman," of Watkins; and the "William Baxter," of New York.

The "Port Byron" left West Troy on her first trip on the 3d of July, and completed her third trip, at the same point, on the 19th of November; having occupied about three and a half months in making the three trips.

The "Newman" began and ended her three trips at Buffalo, on the 31st of August and 7th of November respectively; accomplishing the three round trips in two months and seven days.

The "Baxter" began and ended her trips at West Troy, on the 29th day of August and 14th of November, respectively; occupying two and a half months.

Besides the boats already named, the "Charles Hemje," "Fountain City," "Excelsior," "Eureka," "Central City," "Montana," "Geo. A. Feeter" and "Success," each undertook to accomplish the required preliminary trips. All of these failed; most of them for want of sufficient time, and the others, for reasons which will appear in their proper places. The "Dawson," which commenced her trips during the season of 1871, has also been running during the past season; but, so far as I am informed, she has not made the required three round trips. She has, however, done what the Commission may regard as an equivalent to the required trips.

Before presenting the detailed statements of the performances of these several steamers, I desire to call the attention of the Commission to the circumstances under which the trial trips had to be undertaken; and to certain causes of delay, which, it seems to me, should be kept constantly in view by the Commission, while considering and passing judgment upon the results which have been accomplished.

In the first place, the full depth of water—seven feet—has not been maintained through the season. Many detentions have occurred in consequence of boats grounding while drawing only six feet of water. Some of these have been due to accumulations in the bottom of the canal and some have resulted from excessively low water on some of the shorter levels. The relative navigability of the several sections of the canal, will appear upon examination of the tabulated speeds of the competing boats over them.

Again, the steamer, making an average speed of three miles an hour, or double that of the horse-boat, must, in making a trip from Buffalo to West Troy, overtake and pass one-half the number of loaded horse-boats that may be bound east at the time of her departure from Buffalo. I estimate that at least 360 boats had to be thus passed on each trip. The steersmen of the horse-boats, either from not being able to judge correctly of the speed of the steamers, or from a disposition to hinder their progress as much as possible, would, in almost every instance, neglect or refuse to make way for the steamers to pass. This rendered it necessary to slacken the speed of the steamers, whenever approaching such boats, and, in very many instances, to entirely arrest it. Whenever a steamer undertook to pass a horse-boat, and the captain of the latter refused to halt his team, and this happened very often, the two boats would be drawn together; after which they could only be separated by stopping the team, or by the steamer forcing the horse-boat upon the bank. There was no necessary difficulty in passing the horse-boats, except at points where the horse-boats met. One minute is, in my opinion, a very moderate estimate of the average delay experienced in the passage of horse-boats. The passage of 360 boats would, therefore, involve a delay, in the aggregate, of six hours per trip. No account has been taken of these delays in the deductions which have been made; nor have they been claimed, so far as I am aware, by any of the competitors.* They are, of course, wholly chargeable to the horse-boats, and will disappear whenever steam shall have been substituted for animal power.

Serious complaints have been made, by all of the competitors, of the indisposition of superintendents and lock-tenders to recognize the right of the steamers to precedence at the locks. Capt. Small, of the "Newman," suggests, as a partial remedy for these difficulties and delays at locks, that steamers have precedence at the locks upon the *berme* side of the canal only. Such an arrangement, he thinks, would be quite acceptable to all parties, and would inure to the advantage of both steamer and horse-boat.

Finally, it will be remembered that, during the latter part of the season, the movement of boats was seriously interrupted in consequence of the horse disease. Some have supposed that on this account those steamers which made trips during such interruption met with less delay than they would have encountered had canal traffic remained in its normal condition. Such, however, was not the

* Except in aggravated cases.

case. The difficulties to be overcome by the steamers were in fact increased; for boats that were compelled to lay up invariably did so in the cities and small villages and at the canal groceries. At such places the canal was often found so full of boats that it was utterly impossible for boats to pass each other in opposite directions, and the steamer would be compelled to await, at each blockade, the slow movement of any horse-boat that might have stopped to change horses, or gained the narrow channel from the opposite direction. Many boats ran only during the day time; laying up at night as above stated, and in the morning moving on in schools, which the steamers experienced much delay in passing.

The detailed statements which are presented have been made up from sworn statements furnished by the competitors. These have been accompanied, in most cases, by certified copies of all clearances, and in all cases by copies of a sufficient number of clearances to enable me to judge as to the probable accuracy of the statements furnished. Satisfactory reasons have been given for the failures to present full copies of all clearances. In some cases, slight and immaterial discrepancies exist between the clearances and the statements of the competitors; these, also, have been satisfactorily explained.

In a few instances, there are obvious errors, as well as omissions, in the clearances; but, in most cases, corrections have been made without difficulty. The indorsements upon the clearances of the several collectors, or their clerks, have served to check the accuracy of the logs of the different boats; and as, upon careful comparison of both, I have been unable to discover any inconsistencies in the latter, I am led to the belief that the statements of the competitors thus checked, and the deductions therefrom, may be confidently relied upon as practically correct. My own personal observations, while on board such boats as I have been able to visit, lead to the same conclusion.

PERFORMANCES OF THE COMPETING BOATS.

I. *Description and Performance of the Steamer "A. H. H. Dawson."*

The "Dawson" is an old, full-modeled boat, rebuilt in 1871, and fitted with machinery in accordance with the patent of Messrs. Main and McMillan, of Pierpont, New York. Her weight, with her machinery, is seventy-four and a half tons, and her carrying capacity, with six feet draught of water, 205 tons.

The peculiar feature of this boat consists in the location of the propelling instrument, the ordinary screw, in a cavity at the bow.

This cavity, which is located at the center of the bow, is just large enough to admit the screw, slopes aft, and terminates at a distance of twenty feet from the stem.

She is furnished with a simple upright engine, high pressure, with cylinder twelve inches in diameter, and twelve-inch stroke of piston.

The boiler is upright, cylindrical, and has eight and one-half square feet of grate surface. The feed-water is heated by the exhaust steam, which is afterward discharged into the air or into the uptake, as may be desirable or necessary.

The propeller is a true screw, four bladed, four and one-half feet diameter and six feet pitch.

My own observations upon the performance of the "Dawson" are limited to a trip from Schenectady to Port Jackson, a distance of sixteen miles, made on the 20th of August last. The boat left the collector's office at Schenectady at 8.56 A. M., and reached Port Jackson at 8 P. M., having passed through five locks and having been detained by a jam about fifteen minutes. Deducting all detentions, the average speed during this day was 1.57 miles per hour.

The coal consumption, as near as I was able to ascertain it, averaged ninety-one pounds per hour, or at the rate of 2,184 pounds per day. Consumption of coal per mile, 62.6 pounds.

The average steam pressure was 68.9 pounds; revolutions of the screw, 89.4 per minute; horse-power, 38.6.

The data from which the former has been estimated were determined by observations taken at intervals of fifteen minutes, for the entire run of sixteen miles, and are, therefore, reliable; but in regard to the coal consumption I am not so certain. Having ascertained the weight of a bucket of coal, the engineer was requested to report the number of buckets expended, and the statement above is based upon his report. Although I gave such attention to the record of coal consumed as I was able to give, it is possible, and I think probable, that more coal was used than was reported to me. The fact that the quantity of coal per horse power per hour, as deduced from the foregoing data, is only 2.36 pounds, seems to justify such a conclusion. It is but just to say, however, that the quantity of coal reported as having been consumed is in perfect harmony with the representations of Mr. Main, previously made, that the coal consumption had averaged about one ton in twenty-four hours.

Several observations were made for the purpose of ascertaining the rate of the current, against which the "Dawson" was at that time

running. These observations indicated an average velocity of current equal to about thirty feet per minute, or one-third of a mile per hour.

The run from the collector's office at Schenectady to lock twenty-three, a distance of two and three-quarter miles, was made, without detention, in one hour and fourteen minutes, or at the rate of 2.22 miles per hour, over the ground. Adding to this the velocity of the current in the opposite direction, we get for the speed of the boat through the water, 2.55 miles per hour, or 224.4 feet per minute.

The average number of revolutions of the screw, while running this two and three-quarters miles, was 95.2 per minute. The pitch of the screw being six feet, it follows that the speed due the revolutions was 571.2 feet per minute, or 6.49 miles per hour. The "slip" of the screw was therefore

$$\frac{571.2 - 224.4}{571.2} \times 100 = 60.7 \text{ per cent.}$$

Upon this portion of the canal, the water is, as is well known, of the full width, and more than the ordinary depth. The excessive slip of the "Dawson's" screw is due, in my judgment, to three causes: First. To insufficient size. Second. To the manner in which it is compelled to act, and to the absence of a free escape for the water in the rear of it. Third. To the want of a proper adjustment of the pitch to the peculiar service required of it.

Thus far I am not aware that any competitor has adopted the proper form of screw for canal service. I have given no advice in this direction, for the reason that I have not conceived it to be just to the competitors to do so. A knowledge of the proper form and proportions of the screw may not be essential to the accomplishment of all that is required by the law; but it is, nevertheless, true that better results might have been obtained, had attention been given to this important matter.

In order to make the record of the "Dawson" as complete as practicable in this case, that portion of her performance which was reported last year is reproduced.

FIRST TRIP WEST.

Left the weigh lock at Albany at 9.45 A. M., August 4, 1871; cargo, 191½ tons coal; discharged 30 tons at Syracuse; weight of boat, as per clearance, 69¾ tons; arrived at Buffalo at 9.20 A. M., August 22d.

	Days.	Hours.	Min.
Total time from Albany	17	23	45
	Days.	Hours.	Min.
Detentions reported	9	8	53
Add for lockage .....	..	10	..
	9	18	53

Running time 8 4 52
 or $196\frac{1}{2}$ hours; distance 352 miles; average speed 1.79 miles per hour.

FIRST TRIP EAST.

Left Buffalo at 4.30 P. M., August 28, 1871; cargo, 6,400 bushels of corn; weight, $179\frac{1}{2}$ tons; arrived at West Troy weigh lock at 12.30 A. M., September 7th.

	Days.	Hours.	Min.
Total time from Buffalo	9	8	..
	Days.	Hours.	Min.
Detentions reported	2	6	30
Add for lockage .....	..	10	..
	2	16	30

Running time 6 15 30
 or $159\frac{1}{2}$ hours; distance 345 miles; average speed 2.16 miles per hour.

SECOND TRIP WEST.

Left West Troy at 3.25 P. M., September 23d, 1871. Cargo, $169\frac{1}{2}$ tons coal for Syracuse, and 155 tons railroad iron, from Syracuse to Buffalo. Arrived at Buffalo at 3.30 A. M., October 10th. Total time from West Troy, sixteen days, twelve hours and five minutes.

Detentions not fully reported. The indorsements on the clearance, at the collector's offices between Troy and Syracuse, are so imperfect as to be quite useless. They are as follows: Schenectady, 24th September, at 12.30; Fultonville, 27th September, at 12.50; Little Falls, 28th September, at 8.07; Utica, 28th September, at 10 o'clock.

Montezuma, arrived 7 A. M., October 4th.

Montezuma, left 11 A. M., October 4th.

Palmyra, arrived $10\frac{1}{2}$ A. M., October 6th.

Palmyra, left $12\frac{1}{2}$ P. M., October 6th.

Rochester, arrived 8.40 A. M., October 7th.

Rochester, left 4.40 P. M., October 7th.

Brockport, arrived 3.30 A. M., October 9th.

Albion, arrived 11.30 A. M., October 9th.

Tonawanda, arrived 1.45 P. M., October 10th.

Buffalo, arrived 3.30 A. M., October 10th.

There is obviously an error in one or the other of the last two indorsements; and it is difficult to reconcile the discrepancy with any probable or practicable speeds between Brighton and Buffalo. It is impossible to reach any satisfactory conclusion as to times and speeds on this trip, and for that reason the record is submitted as it stands.

SECOND TRIP EAST.

Left Buffalo at 3.45 P. M., October 16th, 1871. Cargo, 6,603 $\frac{5}{8}$ bushels of wheat; weight, 199 $\frac{2}{10}$ tons. Boat drew five feet ten inches of water.

				DETENTIONS.	
				Hours.	Min.
Arrived at Tonawanda.....	at 7	P. M., 16th.	..	..	..
Left	at 7.15	" 16th.	..	..	15
Passed Pendleton	at 10.45	" 16th.	..	..	..
Arrived at Lockport.....	at 1	A. M., 17th.	..	..	..
Left Lockport	at 1.30	" 17th.	..	..	30
Passed Medina.....	at 7	" 17th.	..	..	..
Arrived at Albion.....	at 10.50	" 17th.	..	..	..
Left Albion	at 11.30	" 17th.	..	..	40
Passed Brockport	at 4.30	P. M., 17th.	..	..	..
Arrived at <i>Rochester</i>	at 11.30	" 17th.	..	..	..
Left Rochester.....	at 3	A. M., 18th.	3	..	30
Delayed by a sunken boat and by weighing.					
Left Brighton locks.....	at 6.30	A. M., 18th.	..	..	..
Passed Palmyra.....	at 6.15	P. M., 18th.	..	..	..
Passed E. Arcadia.....	at 1	A. M., 19th.	..	..	..
Arrived at Montezuma	at 2.10	P. M., 19th.	..	..	..
Left Montezuma.....	at 3.35	" 19th.	1	..	25
Arrived at Geddes.....	at 11.30	A. M., 20th.	..	..	..
Left, after coaling.....	at 2	P. M., 20th.	2	..	30
Passed <i>Syracuse</i>	at 3	" 20th.	..	..	..
Left Lodi locks	at 4.30	" 20th.	..	..	..
Passed Rome.....	at 2.30	" 21st.	..	..	..
Delayed west of Rome by picking up a lost tow-line from the bottom of the canal				2	..
Arrived at <i>Utica</i>	at 10.30	P. M., 21st.	..	..	..
Laid up over Sunday.					
Left Utica	at 12.30	A. M., 23d.	26	..	..
Passed Little Falls.. ..	at 12	M., 23d.	..	..	..
Passed Fultonville.....	at 2.45	A. M., 24th.	..	..	..
Passed Schenectady	at 3	P. M., 24th.	..	..	..
Arrived at Cohoes.....	at 12	M., 24th.	..	..	..
Arrived at West Troy.....	at 5	A. M., 25th.	..	..	..
Total detentions				36	50

Deductions.

	Days.	Hours.	Min.
Total time from Buffalo.....	8	13	15
	Days.	Hours.	Min.
Detentions	1	12	50
Add for lockage .....	..	10	..
	1	22	50
Running time.....	6	14	25

or $158\frac{5}{8}$ hours; distance 345 miles; average speed 2.18 miles per hour.

The following table shows the average speeds between the more prominent points, or over special sections of the canal. A deduction of eight minutes is made for each lock passed.

	Miles.	Running time.		Aver. speeds.
		Hours.	Min.	
Buffalo to Rochester.....	93	29	32	3.15
Rochester to Syracuse	93	53	57	1.72
Syracuse to Utica	56	28	58	1.93
Utica to Schenectady.....	80	35	26	2.26
Schenectady to Troy	23	11	20	2.03

THIRD TRIP WEST (TO SYRACUSE ONLY).

Left West Troy November 8th, 1871, with a cargo of 100 tons of water-lime, for Syracuse.

Passed Schenectady	at 10	P. M., Nov. 9th.
Passed Fultonville	at 10.30	" Nov. 10th.
Passed Little Falls.....	at 11.30	" Nov. 11th.
Passed Utica	at 7	" Nov. 13th.
Passed Rome.....	at 8	" Nov. 14th.

Arrived at Syracuse at 8 P. M., Nov. 15th.

Time, about seven days; distance 159 miles. As no statement of detentions has been made, we can arrive at no conclusion as to speed.

THIRD TRIP EAST.

Left Buffalo July 2d, 1872, with a cargo of 6,696 $\frac{3}{4}$ bushels of corn; weight 187 $\frac{1}{2}$ tons. Passed Schenectady, July 25th. The date of arrival at Troy is not given; nor is any other information contained in the clearance, by which an estimate of the speed can be made. It appears, however, that about eighteen days were consumed in making the run from Buffalo to Syracuse, and that about five days were consumed in making the run from Syracuse to Schenectady.

ADDITIONAL TRIPS OF THE "DAWSON."

On August 16th, 1872, cleared from West Troy for Rochester, laden with 184 tons coal. Arrived at Rochester September 10th; time, about twenty days.

On the 23d of September, cleared from Montezuma, with a cargo of 200 tons coal; bound from Ithaca to Rochester. Arrived at Rochester on the 28th of September.

On the 13th of October, cleared from Montezuma, with a cargo of 200 tons of coal; bound from Ithaca to Rochester. Arrived at Rochester on the 13th of October (so in the clearance).

On the 4th of November, cleared from Montezuma with a cargo of 200 tons of coal; bound from Ithaca to Albion. Passed Rochester on the 8th of November; date of arrival at Albion not given.

The foregoing comprises all of the information in my possession in regard to the performance of the "Dawson." It will be observed that there is no complete record of three entire round trips by this steamer. A single trip from Syracuse to Buffalo is wanting.

On the third trip east, between Buffalo and Rochester, an average speed of 3.15 miles per hour was attained. There is no evidence to show that a speed of three miles was attained during any other trip, or upon any other part of the canal.

Mr. Dawson represents that the boat has done a profitable business during the past season, and that she has been returned in excellent condition, by the party to whom she had been chartered.

It is to be regretted that the data furnished are so incomplete as to render it impossible to deduce any reliable or satisfactory conclusion, as to the time, speed and coal consumption, or to judge of the economy of the boat, as compared with the horse-boat.

SUPPLEMENT.

After completing the foregoing report of the Dawson's performance, I received on the 11th of January, from Mr. Thomas Main, the following:

STATEMENT OF TRIPS OF S. C. B. "DAWSON."

1871.		Cargo.
1. August.	New York to Buffalo.....	185 tons coal.
2. " "	Buffalo to New York.....	200 tons corn.
3. Sept.	Newburgh to Utica,.....	160 tons coal.
4. " "	Utica to Syracuse,	Light.
5. " "	Syracuse to Buffalo.....	160 tons railroad iron.
6. October.	Buffalo to New York.....	200 tons wheat.
7. Nov'r.	Rondout to Syracuse	120 tons cement.
8. " "	Syracuse to New York.....	201 tons salt.

1872.		
9.	June.	New York to Utica 180 tons coal.
10.	"	Utica and Syracuse Light.
11.	"	Syracuse to Buffalo 180 tons coal.
12.	July.	Buffalo to New York 200 tons corn.
13.	August.	New York to Rochester . . . 180 tons coal.
14.	"	Ithaca to Rochester 201 tons coal.
15.	"	Ithaca to Rochester 201 tons coal.
16.	"	Ithaca to Albion 201 tons coal.
17.	Nov'r.	Albion to New York Potatoes and apples.

From this statement it appears that while three complete round trips have not been made, the "Dawson" has run over the entire distance between Buffalo and Troy three times each way, loaded. It appears further that the total distance run by the "Dawson" since the commencement of her first trip, in August, 1871, is made up as follows:

	Miles.
On the Erie canal, loaded	3,058
On the Erie canal, light	292
On Cayuga lake, loaded	169½
On Cayuga lake, light	169½
Total distance run	3,689
Total tons moved one mile	572,876

The above movement was effected during the last half of the season of 1871, and the entire season of 1872.

The number of tons moved one mile on the canal by a horse-boat, making six round trips in a season, with cargoes of 226 tons east and 100 tons west is 674,820; while the number of miles run on the canal is 4,140.

It thus appears, finally, that the entire work of this steamer for a season and a half is not equal, either in freight movement or miles run, to the capacity of a successful horse-boat for a single season.

II. *Description and Performance of the Steamer "William Newman."*

The "William Newman," built at Watkins, New York, is a full-sized, double decked boat, of the following dimensions and capacity: Length of keel, ninety-two feet; over all, ninety-six feet; width, seventeen and a half feet; light weight, including machinery, seventy and three-quarter tons; carrying capacity, when drawing six feet of water, 214 tons.

The lines of the "Newman" are quite full forward, but aft are moderately fine, in order to allow the water to reach the screw.

The machinery of the "Newman" consists of a single upright engine, with cylinder twelve inches in diameter and twelve inches stroke of piston, together with a small auxiliary or "donkey" engine and pump for feeding the boiler.

The screw propeller is four bladed, five feet in diameter, and has a pitch of seven feet.

The boiler is horizontal, return tubular, eight feet long and four feet in diameter; fire-grate, thirty-nine inches long by forty inches wide; area, 10.83 square feet; it has an oval flue, thirty-one inches by fourteen inches, and thirty-three inches long; thirty-four return tubes, two and a half inches diameter, and six feet five inches long; heating surface about 191 square feet.

The engine-room, cabin and quarters of the "Newman" are large, conveniently arranged, and very comfortable for a canal boat.

Late in the season the machinery was inspected and found to be in excellent condition, and giving promise of as much endurance as is usually shown by machinery of that size and power. The behavior of the machinery was found to be all that could be desired, as also was the steaming capacity of the boiler, except for a short time after the fires had been cleaned. The boiler was, however, entirely without protection from loss of heat by radiation, and hence could not be as efficient as it would have been had it been felted or otherwise protected. Capt. Small states that he has expended during the season, for repairs to his machinery, the sum of twelve dollars.

The following "logs" of the three round trips of the "Newman" are made up from certified copies of her clearances, together with a sworn statement of Capt. Small.

FIRST TRIP EAST.

Left Buffalo at 5.30 A. M., August 31st, 1872. Cargo, 7,200 bushels of corn. Weight, $201\frac{6}{10}$ tons.

	DETENTIONS.	
	Hours.	Min.
Detained at Buffalo on account of low water and boats aground	30
Detained at Black Rock by same cause.....	..	30
Detained at Lockport by a raft.....	..	40
Detained at Cataract Springs for water and stores.....	..	20
Arrived at <i>Rochester</i> at 1 P. M., September 1st.		
Detained at Rochester weigh-lock, weighing	30
Detained at Brighton by boat aground at waste-weir	20
Detained at Fairport, coaling	55
Detained at Perrington Strait, low water and boats aground	1	..

	DETENTIONS.	
	Hours.	Min.
Detained at Macedon lock, wedged by boat "Hoyt," captain claiming that steamer had no preference....	1	10
Detained at Clyde, coaling.....	1	..
Detained between Fairport and Syracuse by eel-grass, which fouled the screw ; had to reverse engine to clear the screw .....	..	..
Passed Syracuse at 1.30 p. m., September 3d.		
Detained at Rome trying to coal; water so low could not get to dock	1	..
Arrived at <i>Utica</i> at 4.25 p. m., September 4th.		
Detained at <i>Utica</i> for coal.....	1	..
Passed Schenectady at 4.30 a. m., September 6th.		
Detained at head of the sixteen locks, getting line out of wheel.....	..	40
Arrived at <i>West Troy</i> at 6.45 p. m., September 6th.		
Total detentions claimed.....	9	35

Deductions.

	Days.	Hours.	Min.
Total time from Buffalo	6	13	15
		Hours.	Min.
Detentions claimed.....		9	35
Add for lockage		10	..
	..	19	35
Running time	5	17	40
or 137½ hours. Distance, 345 miles.			

Average speed..... 2.5 miles per hour.
Average speed, including time spent in coaling and clearing the screw..... 2.44 miles per hour.
Average speed, including all detentions..... 2.19 miles per hour.

Average speed over special sections of the canal, exclusive of all detentions claimed, and eight minutes for each lock passed :

	Distance. Miles.	Running Hours.	time. Min.	Aver. speed. Miles per hour.
Buffalo to Rochester.....	93	28	42	3.24
Rochester to Syracuse.....	93	41	27	2.24
Syracuse to <i>Utica</i>	56	25	23	2.20
<i>Utica</i> to Schenectady.....	80	32	1	2.50
Schenectady to <i>West Troy</i>	23	10	55	2.11

FIRST TRIP WEST.

Left West Troy at 6.40 A. M., September 12, 1872. Cargo, 114 tons of iron ore.

	DETENTIONS.	
	Hours.	Min.
Detained between West Troy and Schenectady.....	1	..
Arrived at <i>Schenectady</i> at 6.50 P. M., September 12th.		
Detained at Schoharie creek locks, waiting for turn...	..	20
Detained at Fultonville, for water and stores.....	..	15
Detained at Phillips lock, lock-tender locked boat "David Ellis" on "Newman's" time.....	..	20
Detained at Little Falls lower lock, lock-tender locked boat "Lyman Clark" on "Newman's" time.....	..	20
Detained at Little Falls upper lock, wedged in lock by boat "Thomas Kearney;" lock-tender decided against "Newman," and held lock until superintendent could be found, when "Newman" was locked through....	1	10
Arrived at <i>Utica</i> at 5.30 A. M., September 14th.		
Detained at Whitesboro for water .....	..	8
Detained at Thompson's, dense fog, at night, no boats running	1	..
Detained at Lodi lock, waiting for lock.....	..	15
Arrived at <i>Syracuse</i> at 2.20 A. M., September 15th.		
Detained at Syracuse by boats wedged, could not pass,	..	30
Detained at Geddes, dense fog, could not see.....	1	..
Detained at Port Byron, wedged in lock by boat "Kilderhouse," lock-tender refusing to give the "Newman" the preference.....	..	30
Detained at Montezuma, Sunday; had difficulty in getting coal.....	2	..
Detained by eel-grass between Montezuma and Fairport, as on down trip.....	..	..
Arrived at <i>Rochester</i> at 6.20 P. M., September 16th.		
Detained at Brighton lower lock, boat drawn aground by waste-weir .....	..	20
Detained at Brighton upper lock, boat "John Vought" took "Newman's" turn.....	..	15
Detained at Cataract for water and stores.....	..	20
Arrived at <i>Buffalo</i> at 5 A. M., September 18th.		

Total detentions claimed	9	43
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Deductions.

	Days.	Hours.	Min.
Total time from West Troy	5	22	20
		Hours.	Min.
Detentions claimed.....		9	43
Add for lockage		10	..
	..	19	43
Running time	5	2	37
or 122 $\frac{1}{2}$ hours; distance 345 miles.			

Average speed.....	2.81 miles per hour.
Average speed, including lockages only	2.61 miles per hour.
Average speed, including all detentions	2.42 miles per hour.

Average speeds over special sections of the canal, exclusive of all detentions claimed, and eight minutes for each lock passed:

	Distances. Miles.	Running time. Hours. Min.		Aver. speeds. Miles per hour.
Troy to Schenectady	23	8	30	2.71
Schenectady to Utica.....	80	29	11	2.76
Utica to Syracuse	56	18	55	2.96
Syracuse to Rochester	93	33	52	2.75
Rochester to Buffalo	93	32	57	2.82

SECOND TRIP EAST.

Left Buffalo at 6.40 A. M., Sept. 21st. Cargo, 6,700 bushels of wheat; weight 201 tons.

	DETENTIONS. Hours. Min.	
Detained at Buffalo by low water .....	..	30
Detained at Black Rock by boats across the canal.....	..	40
Detained at Cataract Springs for stores.....	..	20
Arrived at at <i>Rochester</i> 12.30 P. M., Sept. 22.		
Detained at Rochester weigh lock .....	..	30
Detained at Brighton, low water and boats aground...	..	30
Detained between Fairport and Syracuse by eel-grass, low water and boats aground .....	..	..
Detained at Lyons by broken rudder-post.....	19	..
Detained at Port Byron, waiting for lock.....	..	20
Detained at Weedsport by boats aground .....	..	30
Arrived at <i>Syracuse</i> at 6.40 A. M., September 25th.		
Detained at Oneida for coal .....	..	40
Detained at Rome by boats aground.....	1	..
Detained at Whitesboro by dense fog	1	..
Arrived at <i>Utica</i> at 7.55 A. M., September 25th.		
Detained at Utica for coal.....	1	..
Detained from Utica to Frankfort by low water, water drawn down in order to let light boat pass bridge at Utica .....	..	..
Detained at Little Falls by raft .....	..	15
Detained at Schoharie creek, lock-tender refused to give steamer preference .....	..	40
Arrived at <i>Schenectady</i> at 6.40 P. M., September 27th.		
Detained at Upper Aqueduct, waiting for lock .....	..	10
Detained at Lower Aqueduct, taking line out of wheel, Arrived at <i>West Troy</i> at 7 A. M., September 28th.	..	30
Total detentions claimed	27	35

Deductions.

	Days.	Hours.	Min.
Total time from Buffalo	7	..	20
	Days.	Hours.	Min.
Detentions claimed.....	1	3	35
Add for lockage .....	..	10	..
	1	13	35
Running time	5	10	45

or 130 $\frac{3}{4}$ hours; distance 345 miles.

	Miles per hour.
Average speed.....	2.64
Average speed, including time spent in coaling and clearing wheel.....	2.58
Average speed, including all detentions.....	2.05

Average speed over special sections of the canal, exclusive of detentions, and eight minutes for each lock passed :

	Distance. Miles.	Running time. Hours. Min.	Average speed. Miles per hour.
Buffalo to Rochester.....	93	27 32	3.38
Rochester to Syracuse	93	41 42	2.23
Syracuse to Utica	56	22 03	2.54
Utica to Schenectady.....	80	29 26	2.72
Schenectady to West Troy	23	9 20	2.46

SECOND TRIP WEST.

Left West Troy at 6.30 A. M., Oct. 4th, 1872. Cargo, 127 $\frac{1}{2}$ tons iron ore.

	DETENTIONS. Hours. Min.
Detained at lock 8 ; lock out of order.....	.. 30
Detained at Upper Aqueduct, waiting for a lock .....	.. 15
Arrived at <i>Schenectady</i> at 5.45 P. M., Oct. 4th.	
Detained at lock 23, waiting for lock.....	.. 10
Detained at first lock below Port Jackson, waiting for lock .....	.. 15
Detained at Port Jackson; dense fog; no boats running,	3 30
Detained at Fort Plain, waiting for lock .....	.. 15
Detained at Mindenville, waiting for lock .....	.. 10
Detained at Little Falls, lower lock ; lock-tender refusing to give steamer the preference.....	.. 10
Detained at third lock below Little Falls ; same reason as above .....	.. 20
Detained at Ilion ; boats wedged.....	.. 50
Detained at Frankfort, low water and lock broken....	1 ..
Arrived at <i>Utica</i> at 8.45 A. M., Oct. 6th.	
Detained at weigh-lock.....	.. 45
Detained at York Mills, coaling.....	1 ..
Detained at Lenox Basin, wind-bound ; no boats running	1 20

	DETENTIONS.	
	Hours.	Min.
Detained at Lodi lock, waiting for lock.....	..	15
Arrived at <i>Syracuse</i> at 7 A. M., Oct. 7th.		
Detained at Jordan lock, waiting for lock.....	..	15
Detained at Port Byron, wedged in by boat "O. L. Nims;" captain claimed that steamer had no preference	40
Detained by eel-grass as on former trips.		
Arrived at <i>Rochester</i> at 9.45 P. M., Oct. 8th.		
Detained at May's Point, boats wedged	40
Detained at Cataract, for stores.....	..	20
Detained at Tonawanda, by rafts.....	..	20
Arrived at <i>Buffalo</i> at 10 A. M., Oct. 10th.		
Total detentions claimed	13	..

Deductions.				
	Days.	Hours.	Min.	
Total time from West Troy	6	3	30	
				Hours.
Detentions claimed.....				13
Add for lockage				10
	..	23	..	
Running time	5	4	30	
or 124½ hours ; distance 345 miles.				
Average speed.....	2.77 miles per hour.			
Average speed, including lockages	2.57 miles per hour.			
Average speed, including all detentions.....	2.34 miles per hour.			

Average speeds over special sections of the canal, exclusive of all detentions, and eight minutes for each lock passed :

	Distance. Miles.	Running time.		Aver. speeds. Miles per hour.
		Hour.	Min.	
West Troy to Schenectady	23	7	50	2.94
Schenectady to Utica.....	80	27	06	2.95
Utica to Syracuse	56	18	33	3.02
Syracuse to Rochester	93	35	42	2.60
Rochester to Buffalo.....	93	34	07	2.72

THIRD TRIP EAST.

Left *Buffalo* at 7 A. M., October 16, 1872. Cargo, 7,300 bushels of corn ; weight, 204½ tons.

	DETENTIONS.	
	Hours.	Min.
Detained at Tonawanda by raft.....	..	20
Detained at Cataract Springs for stores	25
Detained at Shelby's basin, boat and raft wedged	40
Arrived at <i>Rochester</i> at 12 noon, October 17th.		

	DETENTIONS.	
	Hours.	Min.
Detained at Rochester weigh lock .....	..	30
Detained at Brighton lower lock, waiting for lock ....	..	15
Detained at Fairport for coal	1	..
Detained at first lock west of Clyde, waiting for boats to lock .....	..	20
Detained at Port Byron, waiting for lock.....	..	20
Detained at Geddes, trying to get coal.....	..	30
Arrived at <i>Syracuse</i> at 11 A. M., October 19th.		
Detained at Syracuse for coal.....	3	20
Detained at New Boston, boats aground.....	..	40
Detained at Rome, boats aground .....	..	30
Arrived at <i>Utica</i> at 2.45 P. M., October 20th.		
Detained at Utica weigh lock, weighing.....	..	30
Detained at Frankfort by low water, and by boats aground .....	..	20
Detained at Fort Plain, dense fog, could not see to navigate	1	20
Detained at Schoharie creek, getting line out of wheel, ..	..	20
Arrived at <i>Schenectady</i> at 10.30 P. M., October 21st.		
Detained at Upper Aqueduct, boats wedged	1	..
Detained at Sixteen locks, by dense fog	1	.
Arrived at <i>West Troy</i> at 11.15 A. M., October 22d.		
Total detentions claimed	13	20

Deductions.

	Days.	Hours.	Min.
Total time from Buffalo	6	4	15
		Hours.	Min.
Detentions claimed.....		13	20
Add for lockage.....		10	..
	..	23	20
Running time	5	4	55
or 124 $\frac{1}{4}$ hours; distance, 345 miles.			
Average speed	2.76 miles per hour.		
Average speed, including lockages only.....	2.56 miles per hour.		
Average speed, including all detentions.....	2.33 miles per hour.		

Average speeds over special sections of the canal, exclusive of all detentions claimed, and eight minutes for each lock passed :

	Distance. Miles.	Running time.		Aver. speed. Miles per hour.
		Hours.	Min.	
Buffalo to Rochester	93	26	47	3.47
Rochester to Syracuse	93	41	57	2.22
Syracuse to Utica	56	22	43	2.47
Utica to Schenectady.....	80	26	11	3.05
Schenectady to West Troy	23	8	5	2.85

THIRD TRIP WEST.

Left *West Troy* at 12 o'clock noon, November 1, 1872. Cargo, merchandise; weight, $101\frac{2}{3}$ tons; sixteen tons merchandise to be delivered at Fairport and Rochester; balance for Buffalo.

	DETENTIONS.	
	Hours.	Min.
Arrived at <i>Schenectady</i> at 10.30 P. M., November 1st.		
Detained at Schenectady, wind-bound.....	1	30
Detained at Fultonville, wedged with raft .....	..	20
Detained at Cox's, coaling.....	..	50
Arrived at <i>Utica</i> at 7.30 A. M., November 3d.		
Detained at Whitesboro for stores .....	..	20
Arrived at <i>Syracuse</i> at 4 A. M., November 4th.		
Detained at Syracuse by raft .....	..	30
Detained at Geddes by raft.....	..	20
Detained at Weedsport for coal	1	20
Detained by eel-grass, as on former trips .....	..	..
Detained at Lyons by dense fog.....	4	..
Detained at Perrington by boats aground.....	..	30
Detained at Fairport by boats wedged	1	..
Arrived at <i>Rochester</i> at 10.50 P. M., November 5th.		
Detained at Middleport, coaling.....	..	30
Arrived at <i>Buffalo</i> at 9 A. M., November 7th.		
Total detentions claimed	11	10

Deductions.

	Days.	Hours	Min.
Total time from West Troy.....	5	21	..
		Hours.	Min.
Detentions claimed.....		11	10
Add for lockages.....		10	..
	..	21	10

Running time 4 23 50
or 119 $\frac{1}{2}$ hours; distance 345 miles.

	Miles per hour.
Average speed.....	2.88
Average speed, including lockages only	2.63
Average speeds, including all detentions	2.45

Average speeds over special sections of the canal, exclusive of all detentions claimed and eight minutes for each lock passed :

	Distance. Miles.	Running time. Hours. Min.		Average speed. Miles per hour.
West Troy to Schenectady	23	7	50	2.94
Schenectady to Utica.....	80	27	16	2.93
Utica to Syracuse	56	19	38	2.85
Syracuse to Rochester	93	33	2	2.82
Rochester to Buffalo	93	35	52	2.83

The foregoing comprise the three round trips between West Troy and Buffalo required by the Commission. After completing these trips, the "Newman" made an additional trip from Buffalo to West Troy, with two loaded boats in tow. The duration of this trip, the cargoes and speed are as follows :

Left Buffalo at 5 p. m., November 11th; arrived at West Troy at 11 p. m., November 23d.

	Days.	Hours.
Total time from Buffalo	12	6
Detentions claimed, including lockages.....	1	2
	<hr/>	
Running time	11	4
	<hr/>	
	Miles per hour.	
Average speed.....	1.29	
Average speed, including all detentions	1.17	
Name of boat.	Cargo.	Tons.
"Newman"	7,300 bushels corn.....	204.4
"Everline"	7,500 bushels wheat	225.0
"Harrison"	8,250 bushels corn.....	231.0
	<hr/>	
Totals	23,050	660.4
	<hr/>	

In another place I shall take occasion to consider the economy of this last performance, as compared with those of the boat running alone.

POWER AND COAL CONSUMPTION.

The coal consumption of the "Newman," for each trip, has not been reported. A statement of the aggregate coal consumption for the entire season's work has, however, been furnished; and from this the consumption per mile or trip is deduced as follows:

The steamer commenced running on the 17th of May, 1872, and had, therefore, been running three and a half months when her first trial trip was commenced on the 31st of August. During the entire season she steamed 4,595 miles, and burned 161 tons of coal; costing, at \$5.50 per ton, \$885.50. This distance includes the final trip from Buffalo, upon which two loaded boats were towed. The duration of this trip having been about double that of the other trips, it is assumed that the coal consumption was also double that of the average for that of the other single trips; and that the result would have been the same, so far as fuel is concerned, had the boat made an additional *round* trip instead of making the final single trip with two boats in tow. The length of a single trip, 345 miles, is therefore

added to the actual distance steamed, making the equivalent run $4,595 + 345 = 4,940$ miles. We thus have for the average coal consumption, $\frac{161 \times 2000}{4,940} = 65.2$ pounds per boat mile for the "Newman" alone, or 130.4 pounds per mile when towing two loaded boats.

On the 12th of September I joined the Newman at West Troy, and accompanied her as far as Schenectady. The time consumed in locking averaged, for the twenty locks between West Troy and Schenectady, about five minutes for each lock. This time is that which elapsed from the entrance of the bow of the boat at the lower gates to the passage of the stern from the upper gates; and hence includes the time expended in entering and leaving the lock. Again, on September fourteenth, I joined the Newman at Utica, and accompanied her as far as Durhamville. During these three days, the steam pressure varied from 42 to 85 pounds, and the revolutions from 58 to 90 per minute, and the power from 16 to $42\frac{1}{2}$ horses. The development of the smaller power occurred only for short periods, when the cleaning of the fires had not been attended to at the proper time. The higher power was maintained only for short periods, after detentions at locks or elsewhere, during which the steam would, of course, run up. A fair average for the two days would be about as follows: Steam, 65 pounds; revolutions, 80 per minute; power, 30 to 35 horses, depending upon the cut-off and upon the extent to which the steam was throttled.

On the 12th, the run between locks 19 and 20—called three miles—was made in 53 minutes, against the current; the screw averaging 84 revolutions per minute, and the power expended being about 35 horses. The velocity of the current in that part of the canal was, on several occasions, found to be about half a mile per hour, or 44 feet per minute. Assuming then that the distance between the locks is in fact three miles, the speed of the Newman through the water was 3.9 miles per hour, or 343.2 feet per minute. The speed due to the pitch and revolutions of the screw was 6.68 miles per hour, or 588 feet per minute. The slip of the screw was, therefore, $\frac{588 - 343.2}{588} \times 100 = 42$ per cent, nearly. It should be observed here, that, inasmuch as the "Newman's" cargo was at this time only 114 tons, and her draft about four feet, her screw was not wholly immersed. Under these conditions the "slip" of the screw was naturally greater than it would have been, had the screw been entirely submerged.

On the 14th, the run from Utica to Rome was made in six hours, including one lockage. The power varied from 16 to 42½ horses. At one point, the boat was observed to be making three and three-quarters miles per hour over the ground, against a very slight current; the screw making 84 turns per minute.

I was not able to intercept the Newman while bound east loaded, and hence am unable to make any specific statement as to her performance under such circumstances.

SUMMARY OF "NEWMAN'S" TRIPS.

TRIPS.	Cargoes, tons.	TIMES BETWEEN BUFFALO AND TROY.									Average speed, miles per hour.
		Total.			Detentions, including lockage.			Running time.			
		D.	H.	M.	D.	H.	M.	D.	H.	M.	
First trip east	201.6	6	18	15	..	19	35	5	17	40	2.50
First trip west.....	114.0	5	22	20	..	19	43	5	2	37	2.81
Second trip east.....	201.0	7	0	20	1	18	35	5	10	45	2.64
Second trip west.....	127.75	6	8	30	..	23	0	5	4	30	2.77
Third trip east.....	204.4	6	4	15	..	23	20	5	4	55	2.76
Third trip west.....	101.9	5	21	0	..	21	10	4	23	50	2.88
Means .....	.....	6	6	46%	1	0	35-6	5	6	42 5-6	2.727

GENERAL DEDUCTIONS.

The work done, its cost, etc.

In the absence of all the "Newman's" clearances for the season, it will be impossible to indicate fully and in detail the entire season's work. For the three round trips, however, the work done will stand as follows :

Tons moved one mile, including boat	474,426
Tons moved one mile, cargo only	327,974
Boat, miles.....	2,070
Coal consumed, pounds	134,964
Cost of coal	\$371 18
Power employed, horses (about).....	32
Days occupied in making the three trips, including two trips to New York	69
Cost of engineer's wages	\$184 00
Average length of round trip, days.....	23
Coal consumed per boat mile, pounds	65.2
Coal consumed per ton mile, including boat.....	0.284
Coal consumed per ton mile, cargo only	0.411
Cost of coal per boat mile, cents	14.67
Cost of coal per ton mile, cents (including boat).....	0.078
Cost of coal per ton mile, cents, cargo	0.113
Cost of engineers per boat mile, cents.....	8.89

Cost of engineers per ton mile, cents (including boat) . . .	0.039
Cost of engineers per ton mile, cents, cargo	0.056
Cost of engineers and coal per boat mile, cents	23.56
Cost of engineers and coal per ton mile, cents (inc. boat).	0.117
Cost of engineers and coal per ton mile, cents, cargo . . .	0.169
Average pounds coal burned per hour	175.
Average pounds coal burned per day	4260.
Average pounds coal burned per horse-power per hour . .	5.47
Average speed, exclusive of detentions, miles	2.727
Average speed, including detentions, miles	2.297
Slip of screw; per cent.	40 to 44

AVERAGE SPEEDS OVER SPECIAL SECTIONS OF THE CANAL.

Trips East.

BETWEEN	Dis- tance.	AVERAGE SPEED—MILES PER HOUR.			
		First trip.	Second trip.	Third trip.	Means.
Buffalo and Rochester	98	3.94	3.88	3.47	3.36
Rochester and Syracuse	98	2.94	2.23	2.22	2.23
Syracuse and Utica	56	2.30	2.54	2.47	2.40
Utica and Schenectady	80	2.50	2.72	3.05	2.76
Schenectady and Troy	23	2.11	2.46	2.85	2.47

Trips West.

BETWEEN	Dis- tance.	AVERAGE SPEED—MILES PER HOUR.			
		First trip.	Second trip.	Third trip.	Means.
Buffalo and Rochester	98	2.82	2.72	2.83	2.79
Rochester and Syracuse	98	2.75	2.60	2.82	2.72
Syracuse and Utica	56	2.96	3.02	2.85	2.94
Utica and Schenectady	80	2.76	2.95	2.93	2.88
Schenectady and Troy	23	2.71	2.94	2.94	2.86

Trips East and West.

BETWEEN	Dis- tance.	AVERAGE SPEED—MILES PER HOUR.		
		East.	West.	Means.
Buffalo and Rochester	98	3.36	2.79	3.07
Rochester and Syracuse	98	2.23	2.72	2.47
Syracuse and Utica	56	2.40	2.94	2.67
Utica and Schenectady	80	2.76	2.88	2.82
Schenectady and Troy	23	2.47	2.86	2.66

The preceding tables show that the average speeds east and west, over the entire canal, were 2.7 and 2.82 miles per hour respectively. This difference between the speeds eastward and westward is to be ascribed partly to the fact that the difference between the cargoes of the eastward and westward bound boats was more than sufficient to compensate for the effect of the prevailing eastward current, and partly by the fact that the westward bound boat, on account of its less draft of water, experienced less difficulty from the eel-grass and shoal water between Syracuse and Rochester than did the more heavily and deeply laden eastward bound boat. Had the cargoes been the same both ways, the effect of the currents upon the speeds over the different sections of the canal would have been entirely eliminated in the results contained in the final column of the last table ; but, as the cargoes west were in fact only about half as large as those east, the numbers in this column must still be slightly affected by the currents. However, these numbers may be taken as the nearest attainable indices of the navigability of the several portions of the canal to which they apply. They show conclusively that the complaints which have been so general in regard to that portion of the canal between Syracuse and Rochester have not been wholly without cause. Had this part of the canal been in as good condition as that between Schenectady and Utica, the average speeds east and west over the entire canal would have been 2.85 and 2.87 miles per hour respectively.

At 2.7 miles per hour, the running time between Buffalo and Troy is 127.78 hours. If to this be added the ten hours which has been allowed for lockage, the time is 137.78 hours, or 5 days 17.78 hours; and the average speed, including lockages, 2.504 miles per hour. Adding again thirty hours for the run from Troy to New York, the total time from Buffalo to New York is 167.78 hours, or 6 days 23.78 hours; and the average speed, including lockages, for the entire distance of 495 miles, is 2.95 miles per hour.

We are justified in assuming the time from Troy to New York to be 30 hours, by the fact that the "Newman" has repeatedly made the run between Troy and Albany, 6 miles, in one hour. Capt. Small has never steamed down the river, for the reason, as he states, that he deemed it more economical to tow down than to hire a pilot, and that he did not choose to risk the loss of his insurance, in case of possible accident, in the absence of a licensed pilot.

From all the facts presented, it therefore appears that we are authorized to assume that, with the canal in proper condition, with horse-boats out of the way and steam generally introduced, the "Newman"

can be relied upon to maintain an average speed, between Buffalo and New York, of at least three miles per hour, and that the trip can be made inside of seven days.

III. *Description and Performance of the Steamer "William Baxter."*

The "Baxter" was designed and built expressly to compete for the reward offered by the State, and is, therefore, a purely experimental boat, entirely unlike the ordinary Erie canal boat. She was built during the spring and summer of 1872, at Fishkill-on-the-Hudson, by Samuel Sneden, Esq., an experienced ship-builder of New York, from a model designed by William Baxter, Esq., of Newark, N. J., whose name she bears.

Her dimensions and weight are as follows: Length 96 feet 2 inches; breadth 17 feet; depth of hold 9 feet; weight, including machinery and water in the boiler, $57\frac{2}{3}$ tons.

In model, the "Baxter" resembles the "log-bilge" boats of the New Jersey and Pennsylvania canals, being, however, somewhat sharper than those boats. Her bottom is perfectly flat, and her sides, stem and stern are vertical; so that she has a uniform horizontal section from her bottom up to $5\frac{1}{2}$ feet draft. Above this, the sides are carried out, forming an overhang at the stern, for the protection of the screw and to give deck room.

The form and dimensions of the immersed portion of the Baxter's hull are the same at bow and stern; so that, if a line be drawn athwart the plan, at right angles to the keel, and mid-way between the stem and the stern-post, such line would divide the plan into two equal and symmetrical parts. The sides converge from points distant twenty feet from both stem and stern, on curves of thirty feet radii. The area of the Baxter's bottom is 1,408.078 square feet. Her displacement, when drawing six feet of water, is therefore 8,048.468 cubic feet, or 264.015 tons, and her carrying capacity 206.815 tons. With a cargo of 200 tons, she should draw 5 feet 10 inches of water.* These results are deduced from the dimensions of the Baxter's plans. It is, however, stated that, as a matter of fact, when carrying 201 tons she draws only 5 feet $8\frac{1}{2}$ inches of water.

The machinery, which was built by the Fishkill Landing Machine Company, consist of a Baxter upright cylindrical boiler and a pair of Baxter compound condensing engines; these, together with the coal-

* Six inches immersion of the overhanging stern is not included.

bunker, engineers' berths and water-closet, occupy a space of 14 feet in length, at the stern.

The boiler is about 7 feet high and has an external diameter of $46\frac{1}{2}$ inches; the fire-grate is 27 inches in diameter, and the combustion chamber about 2 feet high; from the upper portion of the latter, which is somewhat larger than the fire-grate, the products of combustion descend through 34 two-inch tubes $18\frac{1}{2}$ inches long, after which they enter and ascend through an annular space about $3\frac{1}{2}$ inches wide, to the smoke pipe, whence they escape into the air. Outside of the annular space just referred to is a second annular space $\frac{7}{8}$ of an inch wide, through which the steam passes and is reheated on its way from the high to the low pressure cylinder.

The boiler was originally covered with felt, and thoroughly lagged with wood, but as the latter was found to be liable to take fire from the excessive heat to which it was exposed, it was removed, and the "salamander" felt substituted in its place. By this means, the loss of heat by radiation from the boiler, from which all the other boilers have suffered more or less, was effectually prevented. Altogether, the Baxter's boiler is remarkably economical for a power suited to its capacity. But it is too small for the duty required of it, and it has been found necessary to keep the small blower (a part of the original design) constantly running, in order to make the necessary amount of steam. The speed at which this blower—which was driven by a belt from one of the screw shafts—had to be run, in order to produce the desired result, was such that, especially at night, a stream of flame was seen frequently issuing from the top of the smoke pipe. In consequence of this loss of heat, the efficiency of the boiler was of course seriously impaired. The areas of the grate and heating surfaces are 4, and 160 square feet, respectively.

The cylinders, which are vertical, are attached to either side of the boiler, and are jacketed; the jackets being connected to the boiler by pipes at top and bottom, so as to insure a constant supply of live steam to the outside, as well as to the inside of the cylinders. The high and low pressure cylinders are 7 and 12 inches in diameter, respectively, and the stroke of the piston is 12 inches; the admission of steam to both is suppressed at three-fourths the stroke, by lap upon the slide valves, which are worked by the ordinary link motion.

The condenser, which is exceedingly cheap and simple, as well as moderately efficient, consists simply of an extension of the exhaust from the low pressure cylinder through the side of the boat, where it connects with a three-inch iron pipe which passes around the stern

and enters upon the opposite side, where a small air pump is located, and operated by a crank attached to the inboard end of the starboard shaft. The condensation is effected by the action of the water in the canal upon the exterior surface of the pipe outside the boat. The vacuum which is obtained by this means varies from 12 to 22 inches, depending upon the temperature of the water, quantity of steam used, etc. The water of condensation is, of course, returned directly to the boiler, and the necessity of supplying it from the muddy water of the canal entirely obviated. In the case of the "Baxter" the loss from leakage was a little more than replaced by a trifling leak in a joint of the condenser pipe, outside the boat, through which a very small quantity of water was forced inward by the excess of external pressure. This is an important feature of the Baxter plan, as by it the accumulation of mud in the boiler is almost, and may be, wholly prevented.

The Baxter is propelled by two three-bladed true screws, $4\frac{1}{2}$ feet in diameter and 4 feet pitch, placed on each side of the stern, and revolving toward each other at the bottom; uniform motion of the two being secured by a cross-shaft and mitre wheels. The disc area of the two screws is $14\frac{3}{4}$ square feet, or 14 per cent of the immersed midship section when the boat is loaded.

The reversing lever, throttle valve and steam whistle are all so arranged as to be within easy reach of the steersman, and the steam and vacuum gauges are so disposed as to be easily seen from the wheel, so that a single person may perform the duties of steersman and engineer at the same time; the fireman being thus free to give his whole attention and time to the fire, and to keeping the engines properly oiled.

The Baxter was launched about the 10th of August; made a preliminary trial trip on the 24th, and on the 27th of the same month left Newburgh for Buffalo on her first competitive trial trip.

Leaving West Troy at 1 p. m., August 29th, on her first trip west, and completing her third trip east at the same point, at 6.30 a. m., November 15th, she occupied, say 78 days in making the three round trips, taking one only of her eastern cargoes to New York during that time.

Mr. Baxter has furnished certified copies of all the clearances of his boat, and a detailed statement of detentions and their causes; together with the original bills of all the coal consumed by the "Baxter," from the time she was launched to the day of her arrival in New York with her third cargo from Buffalo. This statement is

accompanied by the affidavits of Mr. Baxter, Captain Runyon and Mr. Charles L. Sneden, who accompanied the "Baxter" during the greater part of her first round trip.

From these documents, and my own personal observations, the following "logs" of the "Baxter's" several trips are made up.

FIRST TRIP WEST.

Left *West Troy* at 1 P. M., August 29th, 1872; cargo 102½ tons of plaster.

	DETENTIONS.	
	Hours.	Min.
Detained near Cohoes, waiting for locks .....	..	35
Detained east of Schenectady; machinery broken by log in one wheel.....	4	..
Arrived at <i>Schenectady</i> at 4.10 A. M., August 30th.		
Detained at Schenectady for repairs	12	25
Detained, running at two-thirds speed during two dark, foggy nights	5	..
Detained, repairing link motion.....	5	..
Arrived at <i>Utica</i> at 2 A. M., Sept 1st.		
Detained at Utica, discharging part of cargo	9	20
Detained, repairing machinery.....	2	30
Arrived at <i>Syracuse</i> at 9.45 A. M., September 2d.		
Detained at Syracuse to repair links	27	30
Detained at locks below Rochester by blockade of boats, ..	..	30
Arrived at <i>Rochester</i> at 5 A. M., September 5th. (?)		
Detained at Rochester for coal	1	..
Detained at Tonawanda to repair blower belt	1	30
Detained by boats aground.....	1	45
Detained at Black Rock by boats aground.....	1	30
Arrived at <i>Buffalo</i> at 11 P. M., September 6th.		
Total detentions claimed	72	35

Deductions.

	Days.	Hours.	Min.
Total time from West Troy	8	10	5
	Days.	Hours.	Min.
Detentions claimed.....	3	..	35
Add for lockage ..	..	10	..
	3	10	35
Running time	4	23	30
or 119½ hours; distance 345 miles.			

	Miles per hour.
Average speed.....	2.89
Average speed, including ten hours for lockage.....	2.66
Average speed, including all detentions	1.65

Average speeds over special sections of the canal, exclusive of all detentions claimed except for running slow on account of fog and eel-grass, and eight minutes for each lock passed.

	Distance. Miles.	Running time. Hours. Min.		Average speeds. Miles per hour.
West Troy to Schenectady	23	7	55	2.90
Schenectady to Utica	80	25	21	3.15
Utica to Syracuse	56	19	23	2.89
Syracuse to Rochester	93	37	7	2.51
Rochester to Buffalo	93	35	27	2.62

I joined the "Baxter" at West Troy, and accompanied her as far as Crescent. My notes are as follows: Left the weigh-lock at 12.53, p.m., and passed out of lock eighteen at 4.56, p.m. Time from West Troy, 4 hours and 3 minutes; time expended in passing through the sixteen locks, 92 minutes and 40 seconds; average time at each lock, 5 minutes and 45 seconds; maximum time of locking, 7 minutes; minimum time 5 minutes and 15 seconds; detentions, 35 minutes. Reached Crescent, 3 miles from lock eighteen, at 6 p.m.; time from lock eighteen, one hour and four minutes. The performance of the machinery during this run, which was in the highest degree satisfactory, is sufficiently indicated by the following observed data:

Steam-pressure, high-pressure cylinder	74	pounds,
Steam-pressure, low-pressure cylinder	18.75	pounds,
Vacuum	15	inches,
Revolutions per minute	115	
Horse-power	32.23	

This run includes the passage of the Lower aqueduct, and for that reason the time was somewhat greater, and the speed less, than it would have been had no such obstructions been encountered.

FIRST TRIP EAST.

Left *Buffalo* at 3 p.m., Sept. 11th, 1872. Cargo, 7,200 bushels of corn; weight, $201\frac{6}{7}$ tons.

	DETENTIONS. Hours. Min.	
Detained by boats aground at night	1	..
Detained at Black Rock, for stores	1	30
Detained running at $\frac{3}{4}$ speed, on account of low water,	4	..
Detained at Pendleton, aground, low water	5	15
Detained near Rochester by blockade of boats . . . . .	..	30
Arrived at <i>Rochester</i> at 4.30 a.m., Sept. 13th.		
Detained east of Rochester by eel-grass, estimated	25	15
Detained at Macedon by eel-grass	1	30
Detained by stone falling into canal from another boat,	8	..
Detained to adjust machinery . . . . .	..	30

	DETENTIONS.	
	Hours.	Min.
Detained by blockade of boats.....	..	45
Detained at Montezuma on dry dock, to remove eel-grass from screws	6	..
Detained at Geddes for coal	1	30
Arrived at <i>Syracuse</i> at 7.30 P. M., Sept. 15th. (?)		
Detained at Syracuse by crowd of boats.....	..	30
Detained by running at $\frac{1}{2}$ speed during a foggy night..	3	..
Arrived at <i>Utica</i> at 9 A. M., Sept. 17th.		
Detained at Ilion for passengers.....	1	45
Detained running at $\frac{1}{2}$ speed during a stormy and foggy night.....	2	..
Detained by a raft of logs.....	..	30
Detained by a blockade of boats .....	..	30
Detained at lock 23	6	..
Arrived at <i>Schenectady</i> at 9 P. M., Sept. 18th. (?)		
Detained above Cohoes by blockade of boats.....	2	..
Detained for drinking water.....	1	..
Detained adjusting machinery .....	..	30
Arrived at <i>West Troy</i> at 8.45 A. M., Sept. 19th.		
Total detentions claimed.....	73	30

Deductions.

	Days.	Hours.	Min.
Total time from Buffalo.....	7	17	45
	Days.	Hours.	Min.
Detentions claimed.....	3	1	30
Add for lockage .....	..	10	..
	3	11	30
Running time	4	6	15

or 102 $\frac{1}{4}$ hours; distance 345 miles.

Average speed..... 3.38 miles per hour.
Average speed, including lockage..... 3.07 miles per hour.
Average speed, including all detentions..... 1.86 miles per hour.

Average speed over special sections of the canal, exclusive of all detentions claimed, except for running at part speed, and eight minutes for each lock passed :

	Distance. Miles.	Running time.		Aver. speed. Miles per hour.
		Hours.	Min.	
Buffalo to Rochester.....	93	28	27	3.27
Rochester to Syracuse	93	44	45	2.08
Syracuse to Utica.....	56	36	28	1.54
Utica to Schenectady.....	80	24	11	3.31
Schenectady to Troy	23	5	35	4.11

The dates and hours of arrival at Rome and Fultonville are given in the clearance. The times from Rome to Utica, and from Fultonville to Schenectady, are estimated.

The detentions claimed for running at part speed, on account of eel-grass, darkness and fogs, no doubt occurred ; but as they did not amount to actual stoppage, the precise effects could not be estimated. For this reason, these detentions have not been included with the other detentions, and will not be included in making up the speed over the special sections of the canal.

SECOND TRIP WEST.

Left *West Troy* at 3.30 P. M., September 30th, 1872. Cargo, 113½ tons of plaster.

	DETENTIONS.	
	Hours.	Min.
Detained at Cohoes by broken lock-gate.....	3	40
Arrived at <i>Schenectady</i> at 4.50 A. M., October 1st.		
Detained by lock out of order .....	..	15
Detained by blockade of boats.....	..	20
Detained above Fort Plain, to adjust rudder.....	..	30
Arrived at <i>Utica</i> at 9 A. M., October 2d.		
Detained at Utica	1	..
Arrived at <i>Rome</i> at 2.15 P. M.; distance 15 miles; time 4½ hours.		
Detained for castings.....	6	..
Detained by boat aground.....	3	..
Detained by two boats wedged at Eight-mile grocery, Arrived at <i>Syracuse</i> at 9.30 A. M., October 3d.	3	..
Detained by boats aground, and by low water between Lockport and Buffalo.....	9	..
Arrived at <i>Rochester</i> at —, time not given.		
Arrived at <i>Buffalo</i> at 7 A. M., October 6.		
Total detentions claimed.....	26	45

Deductions.

	Days.	Hours.	Min.
Total time from West Troy	5	16	..
	Days.	Hours.	Min.
Detentions claimed.....	1	2	45
Add for lockage .....	..	10	..
	1	12	45

Running time 4 3 15
or 99¼ hours; distance 345 miles.

Average speed..... 3.48 miles per hour.
Deducting from the detentions claimed, 9 hours (between Lockport and Buffalo), the average speed for the running time was..... 3.19 miles per hour.
Including the 10 hours allowed for lockage, with the above detention, the running time was 118¼ hours, and the speed..... 2.92 miles per hour.
Average speed, including all detentions 2.53 miles per hour.

Average speeds over special sections of the canal, exclusive of all detentions claimed, with the exceptions already mentioned, and eight minutes for each lock passed :

	Distance. Miles.	Running time.		Aver. speeds.
		Hours.	Min.	Miles per hour.
West Troy to Schenectady	23	7	30	3.07
Schenectady to Utica	80	24	41	3.24
Utica to Syracuse	56	17	58	3.12
Syracuse to Rochester	93	30	17	3.07
Rochester to Buffalo	93	30	17	3.07

I have here assumed that the speed was uniform between Syracuse and Buffalo, as the time of the arrival at Rochester has not been furnished. The actual speed, from Syracuse to Rochester, was undoubtedly less than that from Rochester to Buffalo ; but just how much less, it is of course impossible to say.

SECOND TRIP EAST.

Left *Buffalo* at 12 o'clock noon, October 10, 1872. Cargo, 6,700 bushels of wheat; weight, 201 tons.

	DETENTIONS.	
	Hours.	Min.
Left <i>Lockport</i> at 8 P. M., October 10th.		
Detained at Brockport by crowd of boats	1	..
Arrived at <i>Rochester</i> at 1.30 P. M., October 11th.		
Detained by a boat tied up	1	..
Detained at Palmyra	2	..
Detained at Jordan to clean and calk boat	12	..
Arrived at <i>Syracuse</i> at 2 P. M., October 13th.		
Detained at Syracuse by crowd of boats	1	..
Detained by block of wood in screw	1	..
Arrived at <i>Utica</i> at 3.50 P. M., October 14th.		
Detained at Frankfort, on dry dock, putting wearing strips on bilges, which had been badly worn by grounding and rubbing on the slope-walls	22	..
Detained at Schoharie creek by low water on short level, which had been drawn down in order to repair lock-gate	2	..
Arrived at <i>Schenectady</i> at 9.20 P. M., October 16th.		
Detained at Phillips' locks by crowd	1	15
Arrived at <i>West Troy</i> at 8 A. M., October 17th.		
Total detentions claimed	41	15

Deductions.

	Days.	Hours.	Min.
Total time from Buffalo.....	6	20	..
	Days.	Hours.	Min.
Detentions claimed.....	1	17	15
Add for lockage .....	..	10	..
	<u>2</u>	<u>3</u>	<u>15</u>
Running time	4	16	45

or 112 $\frac{3}{4}$ hours ; distance 345 miles. •

Average speed 3.06 miles per hour.
 Average speed, including lockages..... 2.81 miles per hour.
 Average speed, including all detentions 2.10 miles per hour.

In making up the speeds over the special sections, no deduction is made from the detentions claimed. The necessity for the delay at Frankfort was due to the obstinacy of horse-boat captains, in refusing to afford facilities for passing, and in putting the steamer aground or upon the slope-walls unnecessarily. These speeds will then stand as follows :

	Distance. Miles.	Running time. Hours.	Min.	Aver. speeds. Miles per hour.
Buffalo to Rochester.....	93	23	42	3.92
Rochester to Syracuse	93	32	22	2.88
Syracuse to Utica.....	56	23	18	2.40
Utica to Schenectady.....	80	28	6	2.85
Schenectady to Troy	23	6	45	3.41

On the 16th I joined the Baxter at 11.15 P. M., just below lock 21, and accompanied her to Troy. The following notes were made during the run: Arrived at lock 20, at 12.20 A. M., 17th; left lock 20, at 12.25; arrived at lock 19, three miles, at 1.20; left lock 19, at 1.30; found level very low; arrived at lock 18, at 4.15 A. M., having made the run of nine miles, including the Lower Aqueduct, in 2 $\frac{3}{4}$ hours; left lock 3 at 8.10 A. M., time occupied in running from lock 18, to lock 3, including passage of both, 3 hours and 55 minutes. During the last four hours a very thick fog prevailed, and it was found necessary to move very slowly and with great caution between the locks.

THIRD TRIP WEST.

Left West Troy at 7 A. M., October 29th, 1872; cargo 114 $\frac{1}{2}$ tons of iron ore.

	DETENTIONS. Hours.	Min.
Detained, waiting for turn at lock.....	..	35
Detained by a boat across the canal.....	..	5
Detained at Upper Aqueduct locks, waiting for turn to lock.....	..	40

	DETENTIONS.	
	Hours.	Min.
Detained at Phillips' lock, lock out of order .....	..	30
Arrived at <i>Schenectady</i> at 6 P. M., Oct. 29th.		
Detained at Schenectady, at collector's office .....	..	15
Detained, dark, foggy night, run very slow; no claim for detention .....	..	..
Detained at Fultonville, cause not stated	4	..
Detained at Little Falls to repair pump	4	15
Detained at Frankfort, lock out of order	1	..
Arrived at <i>Utica</i> at 8 A. M., October 31st.		
Detained west of Utica, lock out of order .....	..	15
Time from Utica to Rome 4½ hours.		
Detained by crowd of boats .....	..	20
Arrived at <i>Syracuse</i> at 2 A. M., November 21st.		
Detained at Port Byron by crowd of boats	1	..
Detained by boat across the canal .....	..	15
Detained at Lyons by crowd of boats, lock-tender refused to give steamer the preference	2	20
Detained, waiting for turn at lock .....	..	15
Detained, waiting for turn at lock during night	1	30
Detained at Fairport for coal	1	10
Arrived at <i>Rochester</i> at 2 P. M., November 2d.		
Detained, waiting for turn at lock	1	5
Detained at Tonawanda by crowd of boats .....	..	15
Arrived at <i>Buffalo</i> at 5 P. M., November 3d.		
Total detentions claimed	19	45

Deductions.

	Days.	Hours.	Min.
Total time from Troy	5	10	..
	Days.	Hours.	Min.
Detentions claimed .....	..	19	45
Add for lockage .....	..	10	..
	1	5	45
Running time	4	4	15

or 100¼ hours; distance 345 miles.

Average speed..... 3.45 miles per hour.
Average speed, including lockages ... 3.13 miles per hour.
Average speed, including all detentions 2.65 miles per hour.

Average speed over special sections of the canal, exclusive of all detentions claimed, and eight minutes for each lock passed:

	Distance. Miles.	Running time		Average speed. Miles per hour.
		Hours.	Min.	
West Troy to Schenectady	23	7	30	3.07
Schenectady to Utica	80	25	26	3.15
Utica to Syracuse	56	16	53	3.32
Syracuse to Rochester	93	27	22	3.39
Rochester to Buffalo	93	24	52	3.74

THIRD TRIP EAST.

Left Buffalo at 12.30 P. M., November 9th, 1872; cargo 6,700 bushels of wheat; weight 201 tons.

	DETENTIONS.	
	Hours.	Min.
Detained at Tonawanda by rafts.....	1	15
Detained near Lockport by boats across the canal.....	2	15
Detained below Lockport by same cause.....	1	50
Detained for provisions .....	..	15
Arrived at <i>Rochester</i> at 6.15 P. M., Nov. 10th.		
Detained by crowd of boats at Rochester.....	1	40
Detained at Brighton lock .....	..	30
Detained at Waynesport by boats aground.....	2	10
Detained at Macedon locks by crowd of boats.....	1	20
Detained at Port Gibson, passing boats.....	..	10
Detained at Newark for coal	2	..
Detained waiting turn at lock .....	..	20
Detained by raft of timber.....	..	25
Detained by boat aground.....	..	20
Detained by level below Lock Berlin, 18 inches low ..	..	35
Detained by passing boats near Clyde.....	..	10
Detained by crowd of boats .....	..	15
Detained at Montezuma, crowd of boats	1	30
Detained at Port Byron, passing boats .....	..	35
Detained at Centreport, crowd of boats .....	..	20
Detained at Weedsport, crowd of boats .....	..	20
Detained at Cold Spring, crowd of boats.....	..	15
Detained at Jordan, crowd of boats.....	..	30
Detained by lines across canal .....	..	20
Detained at Canton, crowd of boats .....	..	10
Detained below Canton, crowd of boats.....	..	10
Detained by crowd of boats .....	..	10
Arrived at <i>Syracuse</i> at 1.30 P. M., Nov. 12th.		
Detained at Syracuse, crowd of boats	1	30
Detained at Lodi lock, waiting for turn .....	..	15
Detained at Thompson's lock, waiting for turn.....	..	10
Detained by boats aground.....	..	10
Detained at Kirkville, crowd of boats .....	..	30
Detained at Durhamville, crowd of boats	1	..
Detained between Rome and Utica, passing boats ....	..	20
Arrived at <i>Utica</i> at 1.10 P. M., Nov. 13th.		
Detained at Utica weigh-lock removing old line and wire from screws.....	..	35
Detained waiting to pass boats between Utica and Ilion, ..	..	30
Detained at Canada creek, crowd of boats	1	30
Detained by tow-line in wheel .....	..	30
Detained at Fultonville for coal and stores.....	..	40
Detained in passing steam-tug "Noyes" with two boats in tow.....	..	20
Detained at Upper lock at Schoharie creek .....	..	15
Arrived at <i>Schenectady</i> at 7 P. M., Nov. 14th.		

	DETENTIONS.	
	Hours.	Min.
Detained at Schenectady by crowd of boats.....	..	20
Detained at Crescent, boat aground across canal	1	..
Arrived at <i>West Troy</i> at 6.30 A. M., Nov. 15th.		
Total detentions claimed	29	..

Deductions.

	Days.	Hours.	Min.
Total time from Buffalo	5	18	..
	Days.	Hours.	Min.
Detentions claimed.....	1	5	..
Add for lockage .....	..	10	..
	1	15	..
Running time	4	3	..

or ninety-nine hours ; distance 345 miles.

Average speed	3.48 miles per hour.
Average speed, including lockage.....	3.16 miles per hour.
Average speed, including all detentions.....	2.50 miles per hour.

Average speeds over special sections of the canal, exclusive of all detentions claimed, and eight minutes for each lock passed :

	Distance. Miles.	Running time.		Aver. speed. Miles per hour.
		Hours.	Min.	
Buffalo to Rochester	93	27	42	3.32
Rochester to Syracuse	93	27	12	3.45
Syracuse to Utica	56	20	43	2.70
Utica to Schenectady.....	80	22	41	3.52
Schenectady to Troy	23	7	30	3.07

On the 12th of November I joined the “Baxter” at Syracuse, and accompanied her as far as Schenectady. My own notes, taken during the run, so far as relates to speed, are as follows: Joined the Baxter at the Syracuse weigh-lock at 2.20 P. M. Left lock 47, at the west end of the long level, at 3.27 P. M.; arrived at Orville feeder, four miles, at 4.59; detained fifteen minutes by a boat across the canal; from 5 to 5.07 aground; arrived at Kirkville at 7.05; detained at Kirkville thirty minutes by a crowd of boats; arrived at Bolivar at 8.40; arrived at Canastota at 11.30; arrived at Rome collector’s office at 7.55 A. M., Nov. 13th; detained at Rome twenty minutes by crowd of boats; arrived at Oriskany, eight miles from Rome, at 10.40; passed Whitesboro at 11.30 A. M.; and arrived at Utica at 1.10 P. M. Made the run from Rome to Utica, fifteen miles, in four hours and fifty-five minutes. Detained at Utica weigh-lock thirty-

five minutes to remove masses of old tow-line, wire fence and other rubbish, which had accumulated upon the screws. Left Utica at 1.45 p. m.; passed West Frankfort lock at 4.30; passed Ilion at 6, and arrived at Little Falls at 9.30 p. m. Time from Rome, including all detentions, thirteen hours and thirty-five minutes; distance thirty-eight miles; average speed, including all detention, 2.8 miles per hour. Passed Mindenville at 12.30 a. m., Nov. 15th; stopped in a jam at 1.10 a. m., and left at 2.35 a. m.; arrived at Fultonville at 9.05 a. m. Stopped at Fultonville forty minutes for coal and stores, and left at 9.45; arrived at Schoharie creek, five miles, at 11.23 a. m. The steam-tug "S. R. Noyes," with two boats in tow and burning three tons of coal per day, left Fultonville just as the "Baxter" arrived. At Schoharie creek lock, the "Noyes" was overtaken by the "Baxter," the former leaving the lock only one minute in advance of the latter. The "Noyes" left the lock, made up her tow and was just getting under way, when the "Baxter" attempted to pass. The "Noyes" refusing to stop, the "Baxter" went aground in her effort to pass. She was soon afloat again and renewed the attempt to pass the tow; after passing the rear boat, the captain of the forward boat peremptorily ordered the "Noyes" to stop, threatening to cut her lines if she persisted in refusing to do so. The "Noyes" then stopped and the "Baxter" passed, after having been detained about twenty minutes. Passed Port Jackson at 1.40 p. m.; passed Hoffman's Ferry at 3.50 p. m.; reached lock 23, at 6.07 and arrived at Schenectady at 7 p. m. The detention caused by a tow-line in the screw, and which is noted in Mr. Baxter's statement, actually occurred, but I neglected to note the time or place. It thus appears that my record agrees substantially with that portion of Mr. Baxter's statement which relates to this part of the trip. From the foregoing notes I make the following deductions: Total time from Syracuse to Schenectady, fifty-two hours and forty minutes; distance 136 miles; average speed, including all detentions, 2.33 miles per hour; average speed, exclusive of twenty-eight lockages, at eight minutes each, 2.78 miles per hour; average speed, exclusive of all detentions except those due to the passage of about 100 loaded boats, which could not be estimated, 3.06 miles per hour.

The engines worked smoothly and well during the entire run, as they did at all times when I was on board, and gave no trouble whatever, beyond the repairing of the blower-belt on a single occasion. The boiler also performed well, doing all that, and even more than I supposed it capable of doing. However, being driven beyond its

capacity, its endurance will very likely prove less than might be expected from a similar boiler of suitable size.

SUMMARY OF THE "BAXTER'S" TRIPS.

TRIPS.	Cargoes, tons.	TIMES BETWEEN BUFFALO AND TROY.									Average speeds, miles per hour.
		Total.			Detentions, including lockages.			Running time.			
		D.	H.	M.	D.	H.	M.	D.	H.	M.	
First trip west.....	102.25	8	10	5	3	10	35	4	23	30	2.89
First trip east	201.60	7	17	45	3	11	30	4	6	15	3.38
Second trip west.....	113.13	5	16	0	1	12	45	4	3	15	3.48
Second trip east	201.0	6	20	0	2	3	15	4	16	45	3.06
Third trip west.....	114.5	5	10	0	1	5	45	4	4	15	3.45
Third trip east	201.0	5	18	0	1	15	0	4	3	0	3.48
Means .....	.....	6	15	18½	2	5	48½	4	9	30	3.29

The only uncertain element in the above is that of detention. How far the detentions claimed may be relied upon, as having actually occurred, of course I cannot undertake to say; except so far as my own personal observation has enabled me to judge of the probable reliability of the statements made. While I do not believe that those detentions, which resulted from the causes stated, exceeded in duration the time claimed, I am inclined to believe that any excessive claim for detention, which the competitor may possibly have made, will find an offset in other detentions, which, from their nature, could not be estimated,

POWER EXPENDED, AND "SLIP" OF SCREWS.

On the 29th of August, the "Baxter," laden with 102½ tons, ran from the head of the 16 locks at Cohoes, to Crescent, including the passage of the Lower Aqueduct, in just one hour. The distance is called three miles. During the first half hour, the steam, revolutions and speed were better than they were during the last half hour. The speed, over the ground, during the first half hour, was estimated to be at the rate of 3½ miles per hour. This result was arrived at by observing the time required by the boat to move its own length over the ground; this time, observed several times, was found to vary from 18 to 20 seconds. A mean of four observations, made at the same time, gave the following data for the power which was being developed by the engines :

Steam, high-pressure cylinder	74	pounds.
Steam, low-pressure cylinder	18.75	pounds.
Vacuum.....	15	inches.
Revolutions per minute	115	
Cut-off in each cylinder	¾	

With these data, an approximate estimate of the power is made thus:

Speed of pistons, feet per minute.....	230.
Area of high-pressure piston, square inch.....	38.48
Area of low-pressure piston, square inch	113.09
Mean pressure, per cent of initial	96.
Mean pressure on high-pressure piston, per square inch, pounds $(72+14.7) 0.96=$	83.23
Deduct back pressure $(18.75+14.7)$	33.45
Mean effective pressure on high-pressure piston, pounds per square inch.....	49.78
Mean pressure on low-pressure piston, pounds per square inch $(18.75+14.7) 0.96=$	32.11
Deduct back pressure, half atmosphere	7.35
Mean effective pressure on low-pressure piston, pounds per square inch.....	24.76
Total mean effective pressure on high-pressure piston, pounds $38.48 \times 49.78=$	1915.53
Total mean effective pressure on low-pressure piston, pounds $113.09 \times 24.76=$	2800.11
Therefore,	

$$\text{H. P.} = \frac{(1915.53 + 2800.11) \times 230}{33000} = 32.87$$

Subsequent observations showed that in this part of the canal the velocity of the current was about half a mile an hour. It follows, then, that the steamer was running through the water at a speed of four miles per hour, and that the actual "slip" of the screws was

$$\frac{4 \times 115 - 4 \times 88}{4 \times 115} \times 100 = 23\frac{1}{2} \text{ per cent, while the } \textit{apparent} \text{ slip was}$$

$$\frac{1 \times 115 - 3.5 \times 88}{4 \times 115} \times 100 = 33 \text{ per cent. The boat at this time was}$$

drawing only three feet nine inches of water, and hence the screws were not fully immersed. For this reason, both the power and the slip were greater than they would have been had the same useful work been accomplished by the same screws wholly immersed.

On the 13th of November, while the "Baxter" was making her final trip east, observations were made between Oriskany and Utica, while the boat was running at a speed of three and one-half miles per hour over the ground. The results of these observations were as follows:

Steam pressure in high-pressure cylinder.....	65 pounds.
Steam pressure in low-pressure cylinder.....	12 pounds.
Vacuum	$17\frac{1}{2}$ inches.
Revolutions, per minute.....	88

From these data it appears that the power which was being developed at the time was 21.61 horses. At this point the speed of the current was small and uncertain ; it was, however, in the direction in which the boat was moving. The apparent slip of the screws was $\frac{4 \times 88 - 3\frac{1}{2} \times 88}{4 \times 88} \times 100 = 12\frac{1}{2}$ per cent. If the current was half a mile an hour, the actual slip was twenty-five per cent.

Again, on the 15th of November, observations were made a short distance east of East Canada creek, with the following results :

Steam pressure in high-pressure cylinder	75 pounds.
Steam pressure in low-pressure cylinder.....	18 pounds.
Vacuum.....	16 inches.
Revolutions per minute.....	102

The power estimated from these data was 29.75 horses. No note was made of the speed, on account of the darkness, which prevented reliable observations for that purpose.

Finally, on the 15th of November, while the "Baxter" was overhauling the "Noyes," between Fultonville and Schoharie creek, observations were made with the following results :

Steam pressure in high pressure cylinder.....	60 pounds.
Steam pressure in low pressure cylinder.....	15 pounds.
Vacuum, about.....	20 inches.
Revolutions per minute.....	88

These data indicate a power of 22.8 horses. The speed was not noted ; but as the run of five miles was made in one hour and thirty-eight minutes, without detention, it is safe to say that the speed was not less than three miles an hour over the ground. The velocity of the current was not known, nor were there any means by which it could be ascertained at the time of these observations. If, however, we assume it to have been half a mile an hour, the speed of the boat through the water was only two and one-half miles an hour ; and the real slip of the screws thirty-seven and one half per cent, while the apparent slip was twenty-five per cent. It is probable that the real speed of the boat at this time was in fact three and one-half miles per hour ; for the average speed for running time for the entire trip from Syracuse to Schenectady was over three miles, without taking account of the loss of time in passing boats, and in stopping and getting under way at locks. If the speed was three and a half miles over the ground, or three miles through the water, the real and apparent slips were twenty-five and twelve and a half per cent respectively.

On the 15th of November, the "Baxter" attained a speed of four

miles per hour on the canal in West Troy, and made the run from the Lower side-cut to a point in Albany below the new railroad bridge in fifty-five minutes.

The average of the four determinations of power is 26.76 horses; but as one of these results only was obtained when the steamer was running against the current, while three were obtained while she was running with the current, more weight should obviously be attached to the former than to the latter. Giving to the former *three times* the weight that is given to the latter, the average power is 28.8 horses. It is believed that twenty-eight horses and thirty per cent are fair averages for the power and "slip" respectively.

COAL CONSUMPTION AND DISTANCE STEAMED.

The coal consumption for each trip has not been reported; but all the coal bills have been furnished, showing that the total consumption of coal, both for steam and cooking, from the time the "Baxter" was launched until she was finally laid up at Fishkill, was 85,130 pounds, or about 42½ tons. The cost of this coal was \$261.60, or at the rate of \$6.15 per ton. The total distance steamed by the "Baxter" appears to have been as follows:

Six trips between Troy and Buffalo	2,070 miles.
Four trips between Troy and New York	600 miles.
Trial trips about Fishkill	40 miles.
One trip from Troy to Waterford and return	8 miles.
Trips about the harbors of New York and Buffalo	25 miles.
Total	2,743 miles.

The time occupied in making these runs extended from the 24th of August, on which day the first trial trip was made, to the 18th of November, on which day the "Baxter" arrived in New York with her third cargo from Buffalo. Of the eighty-six days thus occupied, twenty-six days were spent in New York, Troy and Buffalo, with fire in the furnace and steam up.

Applying the total coal consumption to the whole number of miles steamed, the average is 31.04 pounds per mile, and the cost per mile, for fuel alone, 9.545 cents. At three miles per hour, the hourly consumption of coal is 93.12 pounds.

For the actual running time, however, the consumption and cost must have been less, but just how much less, it is of course impossible to say. That the above results are not too small, seems to be proven

by the results of observations made for eighteen hours, beginning at 8.45 A. M., November 14th, and ending at 2.45 A. M., November 15th. During that time the hourly consumption of coal—which was checked every six hours—was very uniformly eighty pounds per hour, or 26 $\frac{2}{3}$ pounds per mile. At this rate of consumption, the costs of fuel per hour and per mile were 24.6 and 8.2 cents respectively. Finally, as indicating the probable accuracy of the reported coal consumption, I refer to the very small grate surface of the “Baxter’s” boiler.

GENERAL DEDUCTIONS.

Tons moved one mile on the canal, including boat	440,047
Tons moved one mile, cargo	322,057
Boat miles, on the canal	2,070
Coal consumed on the canals, pounds	64,253
Power employed, average, horses	28
Days occupied in making the three round trips, including one trip to New York	78
Average length of round trip, days	26
Coal consumption, per boat mile, pounds	31.04
Coal consumption, per hour, at three miles per hour	93.12
Coal consumption, per day, at three miles per hour	2234.88
Coal consumption, per ton mile, including boat	0.146
Coal consumption, per ton mile, cargo	0.1995
Cost of coal, per boat mile, cents	9.545
Cost of coal, per ton mile, including boat, cents	0.0449
Cost of coal, per ton mile, cargo, cents	0.0613
Average coal per horse power, per hour, pounds	3.33

AVERAGE SPEEDS OVER SPECIAL SECTIONS OF THE CANAL.

Trips East.

BETWEEN	Dis- tance, miles.	AVERAGE SPEED—MILES PER HOUR.			
		First trip.	Second trip.	Third trip.	Mean.
Buffalo and Rochester	93	3.27	3.92	3.32	3.50
Rochester and Syracuse	93	2.08	2.88	3.45	2.80
Syracuse and Utica	56	1.54	2.40	2.70	2.21
Utica and Schenectady	80	3.81	2.85	3.52	3.23
Schenectady and Troy	23	4.11	3.41	3.07	3.53

Trips West.

BETWEEN	Dis- tance, miles.	AVERAGE SPEED—MILES PER HOUR.			
		First trip.	Second trip.	Third trip.	Means.
Buffalo and Rochester	93	2.62	3.07	3.74	3.14
Rochester and Syracuse	93	2.51	3.07	3.39	2.99
Syracuse and Utica	56	2.89	3.12	3.32	3.11
Utica and Schenectady	80	3.15	3.24	3.15	3.18
Schenectady and Troy	28	2.90	3.07	3.07	3.01

Trips East and West.

BETWEEN	Dis- tance, miles.	AVERAGE SPEED—MILES PER HOUR.		
		East.	West.	Means.
Buffalo and Rochester	93	3.50	3.14	3.32
Rochester and Syracuse	93	2.80	2.99	2.89
Syracuse and Utica	56	2.21	3.11	2.60
Utica and Schenectady	80	3.23	3.18	3.27
Schenectady and Troy	28	3.53	3.01	3.2

From the numbers in the final columns of the last three tables, by attaching to each speed a value corresponding to the distance to which it applies, the following results are obtained :

Average speed from Troy to Buffalo, miles	3.08
Average speed from Buffalo to Troy, miles	3.04
Average speed for the entire distance, steamed on the canal, miles.....	3.06

The final result is less than that in the “Summary of the ‘Baxter’s’ performance,” for the reason that, in making up the speeds over the special sections of the canal, those detentions claimed for running at part speed, on account of darkness, fog and eel-grass, and for all other causes which did not cause actual stoppage of the boat, were dis-allowed.

At 3.06 miles per hour, the time from Buffalo to Troy is 112½ hours, or four days and sixteen and three-quarter hours. Adding the ten hours which have been allowed for lockage, the time is 122½ hours, or five days two and three-quarter hours ; and the average speed, including lockages, 2.81 miles per hour. Adding thirty hours for the trip from Troy to New York, the total time from Buffalo to New York is 152½ hours, or six days eight and three-quarter hours ;

and the average speed for the entire run from Buffalo to New York, 495 miles, is 3.24 miles per hour, including lockages on the canal.

In judging of the performance of the "Baxter" and of the capabilities of the system which she represents, some importance should, I think, be attached to the fact that neither the inventor nor the builder had any acquaintance with or experience in canal navigation, until this steamer entered the canal on the 29th of August last. It is, therefore, reasonable to assume that, with the experience gained and the opportunities for observation afforded, during the time occupied by the "Baxter" in making her trips, modifications and improvements have been suggested, which, when carried into effect, will insure still better results; even with the canal in the same condition that it was during the season of 1872.

It has been objected by some that the "Baxter" is too light and frail, and, hence, that her endurance will be far less than that of the ordinary boat. It is to be remembered, however, that the necessity which exists for great weight and strength in the ordinary horse-boats, grows out of the frequent and severe shocks to which they are subjected, from unavoidable collisions with other boats, and with the banks and structures of the canal. These collisions occur in most cases for the reason that the horse-boat possesses no means, within itself, of controlling its movements. With the steamer, the case is different; carrying her own power, she can go ahead, stop or back, as occasion may require, and thus, to a great extent, avoid collision and the resulting injuries. For this reason, the boat which is propelled by steam need not be so heavy or strong as the horse-boat is required to be. In case, however, experience shall demonstrate that the "Baxter" lacks strength, boats may be built upon the same model, six inches wider and two feet longer, and with a displacement, when drawing six feet of water, of at least 277 tons; or, if it be desirable, the bow may be made fuller and the displacement increased to 280 tons.

The economy of the compound engine for canal purposes seems to be demonstrated so far as it can be by a single experiment; and while these engines are necessarily more complex than the ordinary single engine, no extraordinary or uncommon skill is required in their management. The objectionable feature of complexity is far more than compensated by the advantages which they possess in the economy of fuel and in the condensing arrangement.

As an experiment, at least, I regard the "Baxter" as eminently successful.

IV. *Description and performance of the steamer "Chas. Hemje."*

The "Hemje" was built in Buffalo by Mr. Geo. H. Notter. In model and manner of building she differs but little from the ordinary lake boat, having the full bow of the latter, but being sharper at the stern to permit the water to reach the screw.

The weight of the "Hemje," including machinery, fuel and stores, is about seventy-eight and three-quarter tons; her motive power consists of a single upright non-condensing engine, with cylinder 14 inches in diameter and 12 inches stroke of piston; steam cut-off at half stroke.

The boiler is horizontal, is four feet nine inches in diameter and eight feet long, with return tubes, and has a grate surface of thirteen square feet. I have no further information as to the other general dimensions, or as to the details of the boiler; it is, however, of the usual form, and steams well when well fired. The exhaust steam may be turned into the smoke-pipe whenever it is found desirable or necessary to supplement the natural draught.

The "Hemje's" screw is an ordinary four-bladed true screw, four feet six inches in diameter, and having a pitch of six feet six inches.

The peculiar feature of this boat consists in a cylindrical casing of boiler iron, having its axis horizontal, and inclosing the screw which revolves within, but without connection with it. This cylinder or tube is from three to four feet in length, and in internal diameter exceeds the screw by about an inch, possibly two inches. It is mounted upon a vertical axis, occupying the position and performing the functions of the ordinary rudder post, and may be revolved by and about the latter through an angle of ninety degrees—forty-five degrees to starboard or port—thus serving the purpose of the rudder, which is dispensed with.

Mr. Hemje contends that the screw, being surrounded by this casing, will expend its entire force directly astern, and that any lateral disturbance of the water, which might cause it to act injuriously upon the banks of the canal, is entirely prevented.

Certified copies of the "Hemje's" clearances have been furnished, together with a statement of her detentions, with their causes, and of the coal burned during each trip. From these, the latter being verified by the oath of Mr. Hemje, the following log of the several trips made by the "Hemje" has been made up:

FIRST TRIP EAST.

Left Buffalo at 11 A. M. September 27th, 1872. Cargo, 7,200 bushels of corn ; weight, 201.6 tons. Draft of water, six feet.

	DETENTIONS.	
	Hours.	Min.
Detained leaving slip, aground.....	1	..
Detained at York-street bridge.....	1	40
Detained at Tonawanda, aground on sunken logs near railroad bridge.....	2	30
Detained near Rickardsville, aground on sunken boat..	22	30
Detained at Pendleton, laid up; water 18 inches low..	10	15
Detained at Lockport to repair damages received while aground, and to change part of crew.....	47	55
Detained by a boat across the canal.....	..	20
Detained near Hulberton, aground, water low.....	1	15
Detained east of Hulberton, aground, water low.....	..	15
Detained by nine boats, canal blockaded .....	..	30
Detained near Rochester by three boats aground.....	..	15
Arrived at <i>Rochester</i> at 7 A. M., October 2d.		
Detained at Rochester in passing out of weigh-lock, caught line in wheel.....	3	15
Detained, waiting for turn at lock—locking rafts .....	..	15
Detained passing a loaded boat, the captain of which refused to lay in to the tow-path .....	..	20
Detained one-half mile east of Macedon lower lock, aground	2	35
Detained passing a boat which would not lay in to the tow-path; had to “bank” him .....	..	20
Detained at Clyde, could not get to the lock on account of rafts.....	..	20
Detained at Port Byron in the night; lock-tenders would not open gates, and refused to give reason for their refusal.....	1	20
Detained at coal-yard, aground, and steersman sick....	20	40
Detained, aground, in trying to pass a horse-boat, captain refusing to lay in.....	..	15
Detained, aground, in trying to pass two boats which were also aground.....	1	..
Detained 150 yards west of Geddes, fence post with iron wire and a grappling-hook in wheel.....	5	30
Arrived at <i>Syracuse</i> at 12 o'clock, noon, October 5th.		
Detained at Syracuse, waiting to get a steersman to relieve another who was sick.....	4	..
Detained, aground, in trying to pass twenty-five boats which were laid up.....	..	45
Detained by boats refusing to lay in .....	..	15
Detained by low water, aground	2	..
Detained at Rome, aground, low water.....	1	15
Arrived at <i>Utica</i> at 6.45 P. M., October 6th. (Time from Rome to Utica just five hours.)		

	DETENTIONS.	
	Hours.	Min.
Detained at Utica.....	..	15
Detained by a dozen boats aground.....	..	30
Detained at Little Falls for coal.....	6	15
Detained by boat across canal.....	..	20
Detained by low water, aground.....	..	20
Detained in clearing the canal of a jam of forty boats..	3	25
Arrived at <i>Schenectady</i> at 8.30 A. M. October, 8th.		
Detained at Schenectady.....	1	..
Detained in a crowd at Upper Aqueduct	2	..
Detained for wood, water and provisions .....	..	45
Detained in passing a boat, the captain of which refused to lay in, entering aqueduct, and meeting boats bound west .....	..	30
Arrived at <i>West Troy</i> at 10.15 P. M., October 8th.		
Total detentions claimed.....	147	50

Deductions.

	Days.	Hours.	Min.
Total time from Buffalo	11	11	15
	Days.	Hours.	Min.
Detentions claimed.....	6	03	50
Add for lockage .....	..	10	..
	6	13	50

Running time 4 21 25
or 117 $\frac{5}{8}$ hours; distance 345 miles.

	Miles per hour.
Average speed.....	2.94
Average speed, including lockage	2.71
Average speed, including all detentions	1.25

Average speed over special sections of the canal, exclusive of all detentions claimed, and eight minutes for each lock passed.

	Distance. Miles.	Running time.		Average speed. Miles per hour.
		Hours.	Min.	
Buffalo to Rochester	93	26	47	3.47
Rochester to Syracuse	93	39	02	2.38
Syracuse to Utica.....	56	21	58	2.55
Utica to Schenectady.....	80	23	36	3.39
Schenectady to Troy	23	6	50	3.37

The trip from Albany to New York was made in twenty-nine and one-half hours, running time. Average speed on the river, 4.9 miles per hour. Coal consumption from Buffalo to New York, fifteen and one-half tons, or at the rate of sixty-two pounds per mile. The consumption per mile, on the canal, was of course greater, and that on the river less, than sixty-two pounds; but owing to the serious delays

on the canal, it is impossible to assign proper values to the canal and river portions of the trip.

FIRST TRIP WEST.

Left *New York* at 9 P. M., October 17th, with a cargo of 140 tons of coal for Buffalo. Encountered thick fog and a freshet in the upper portion of the river; running time, from New York to Troy, thirty-six and a half hours; average speed on the river, 4.11 miles per hour.

Left *West Troy* at 5.30 P. M., October 20th.

	DETENTIONS.	
	Hours.	Min.
Detained in passing the sixteen locks, waiting for locks, Arrived at <i>Schenectady</i> at 4.30 A. M., Oct. 21st.	..	15
Detained in trying to pass several boats, went aground, Detained west of Fultonville, aground, trying to pass boats	1	25
Detained on a foggy night, aground	1	20
Detained at Little Falls, for coal	3	..
Detained in passing scow, captain refusing to lay in... ..	4	45
Detained in getting past two light boats, which were kept swinging across the canal to prevent steamer passing .....	..	15
Detained in Utica, aground under bridge, ten feet from abutment .....	..	35
Arrived at <i>Utica</i> collector's office, at 5.55 P. M., October 22d.		
Detained at Utica for provisions	1	45
Detained aground .....	..	20
Detained by boat across the canal .....	..	15
Detained in passing a boat, the captain refusing to lay in, Arrived at <i>Syracuse</i> at 1.15 P. M., October 23d.	..	12
Made the run from Utica to Syracuse—56 miles, in 17 hours, 35 minutes, including all detentions; average speed, 3.18 miles per hour.		
Detained at Syracuse; captain left boat and refused to return	3	45
Detained west of Syracuse, aground, low water .....	..	25
Detained, laid up during a foggy night; had to run very slow before laying up	4	..
Detained to file and line brasses	4	15
Detained in jam and waiting for lock	1	45
Arrived at <i>Rochester</i> 11 A. M., October 25th.		
Detained at Rochester for provisions	1	..
Detained passing a boat; towed it a mile and was aground twice .....	..	15
Detained by boats which were tied up; had to wait for boats moving east .....	..	12
Detained at Albion; a very dark, stormy night	6	40
Detained for coal and repairs	2	..

	DETENTIONS.	
	Hours.	Min.
Detained by crowd of boats .....	..	15
Detained at Pendleton by crowd of fifty to sixty boats,	13	..
Detained trying to relieve a horse-boat, which was	1	..
aground or on a rock		
Detained at Black Rock, unable to pass boats in the	..	10
narrow water		
Detained near Buffalo by six boats aground	1	..
Arrived at <i>Buffalo</i> at 4.30 P. M., October 27th.		
<hr/>		
Total detentions claimed	54	4
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Coal consumption, between New York and Buffalo, fifteen tons.

Deductions.			
	Days.	Hours.	Min.
Total time from West Troy	6	23	..
	Days.	Hours.	Min.
Detentions claimed	2	6	4
Add for lockage .....	..	10	..
	<hr/>		
	2	16	4
	<hr/>		
Running time	4	6	56
or 102.93 hours; distance 345 miles.			

	Miles per hour.
Average speed	3.85
Average speed, including lockage	3.05
Average speed, including all detentions	2.07
Average speed on the river	4.11

Average coal consumption per mile, for the entire run from New York, 60½ pounds.

Average speeds over specical sections of the canal, exclusive of all detentions claimed and eight minutes for each lock passed:

	Distance. Miles.	Running time.		Average speeds. Miles per hour.
		Hours.	Min.	
Troy to Schenectady	23	9	5	2.51
Schenectady to Utica	80	21	46	3.67
Utica to Syracuse	56	16	16	3.44
Syracuse to Rochester	93	29	27	3.16
Rochester to Buffalo	93	27	10	3.42

The effect of the horse disease in causing delay to the steamer will be observed in the number and character of the detentions claimed during the latter part of this trip. The slight delay properly chargeable to the machinery will also be noticed.

SECOND TRIP EAST.

Left Buffalo at 4.30 P. M., November 2d, 1872. Cargo, 6,700 bushels of wheat; weight, 201 tons.

	DETENTIONS.	
	Hours.	Min.
Ran upon two rocks in Black Rock harbor and began to make water.		
Detained at Black Rock, to ascertain extent of the damage; found three inches of water in the bow...	..	30
Detained at Tonawanda to procure additional pump, leak increasing	2	30
Detained at Pendleton, canal blockaded	2	..
Detained at Lockport, on dry-dock repairing damages, Detained for repairs; upper gib and key of connecting-rod came out; engine disabled	39	..
Detained two miles west of Rochester, ran upon a rock twenty-five to thirty feet from berme; had to send to Rochester twice for assistance	6	..
Detained by crowd of boats at Rochester aqueduct....	19	30
Arrived at <i>Rochester</i> , at 3.15 P. M., November 6th.	..	25
Detained at Rochester weigh-lock .....	..	45
Detained at first lock east of Rochester; had just passed a horse-boat; lock-tender refused to lock the steamer; superintendent ordered steamer to fall back; did so, and allowed horse-boat to pass .....	..	40
Detained at third lock east of Rochester, waiting at lock; lock-tender refused to lock the steamer, saying that he had orders from the superintendent not to give steamer precedence	1	..
Detained at Pittsford by blockade .....	..	40
Detained near Lockville, aground	1	30
Detained at lock, canal blockaded	1	15
Detained at Clyde for coal and stores	1	30
Detained by getting aground twice	1	55
Arrived at <i>Syracuse</i> at 12.25 P. M., November 8th.		
Detained at Syracuse for coal and to clear the screw ..	4	..
Detained in passing a boat which was aground near tow-path; the "Hemje" grounded in five feet ten inches of water	2	35
Detained at Manlius; found eight or ten boats aground, and was compelled to lay up until morning	9	05
Detained at Chittenango, to key up .....	..	15
Detained at Canastota for water and provisions .....	..	25
Detained near Durhamville, aground in passing boats, ..	..	15
Detained near Dumbarton, aground .....	..	20
Detained near Higginsville, aground .....	..	10
Detained at Rome, to telegraph .....	..	40
Detained in passing many boats at night .....	..	15
Arrived at <i>Utica</i> at 3.40 A. M., November 10th.		
Detained at Utica to clear mass of iron fence-wire from screw .....	..	45

	DETENTIONS.	
	Hours.	Min.
Detained near Frankfort, aground.....	..	15
Detained by blockade of boats at lock.....	..	20
Detained, aground	1	20
Detained west of Schenectady, aground.....	..	40
Arrived at <i>Schenectady</i> at 9.30 A. M., November 11th.		
Detained at Upper Aqueduct by boats aground across the canal.....	2	..
Detained above lock 19, aground.....	..	15
Detained at head of sixteen locks; found canal blockaded,	1	..
Detained between locks 10 and 11, aground.....	..	45
Detained between locks 9 and 10, aground.....	..	30
Arrived at <i>West Troy</i> at 11.30 P. M., November 11th.		
Total detentions claimed.....	105	..

The "Hemje" left Albany at 1 P. M., November 12th; laid up at Coxsackie four and one-half hours on account of a thick fog, and arrived in New York at 7.30 P. M., November 13th. Coal consumption from Buffalo to New York, fifteen and one-half tons.

Deductions.			
	Days.	Hours.	Min.
Total time from Buffalo to Troy	9	7	..
	Days.	Hours.	Min.
Detentions claimed.....	4	9	..
Add for lockage .....	..	10	..
	4	19	..
Running time	4	12	..
or 108 hours; distance 345 miles.			

	Miles per hour.
Average speed.....	8.19
Average speed, including lockage	2.92
Average speed, including all detentions	1.59
Average speed on the river.....	5.54
Average coal burned per mile from Buffalo to New York, 62 pounds.	

Average speed over special sections of the canal, exclusive of all detentions claimed, and eight minutes for each lock passed :

	Distance. Miles.	Running time.		Average speed. Miles per hour.
		Hours.	Min.	
Buffalo to Rochester.....	93	24	2	3.87
Rochester to Syracuse	93	33	47	2.75
Syracuse to Utica	56	20	43	2.71
Utica to Schenectady.....	80	23	26	3.41
Schenectady to Troy	28	7	10	3.21

I joined the "Hemje" at Syracuse on the 8th of November, and accompanied her as far as Canastota. The detentions met with between those points, as well as the causes thereof, were observed by me, and are correctly stated by Captain Hemje.

SECOND TRIP WEST.

Left New York for Oswego at 7 A. M., November 17th, laden with 162 $\frac{4}{10}$ tons of coal. Arrived at Newburgh at 5.45 P. M., same day; went alongside the dock to take a pilot; did not find one until 9 P. M. Left Newburgh at 9.45 P. M., and arrived in Albany at 4.30 P. M. on the 18th.

Left *West Troy* at 11 P. M., November 18th.

	DETENTIONS.	
	Hours.	Min.
Detained in passing the 16 locks; grounded five times; water very low	2	..
Detained at Upper Aqueduct; found canal blockaded by eastward bound boats	1	15
Arrived at <i>Schenectady</i> at 1 P. M., November 19th.		
Detained at Schenectady for coal	2	..
(Run from Schenectady to lock 23, two and three-quarter miles, in 38 minutes; speed, 4.34 miles per hour.)		
Detained near Port Jackson by blockade .....	..	40
Detained at Canajoharie, screw loose on shaft; went on dock to secure it; dock was full; had to wait for a berth	10	30
Detained at Fort Plain, aground .....	..	20
Detained near Little Falls, aground .....	..	45
Detained at Frankfort, lock-tender gave horse-boat the preference and allowed boat to remain in lock while changing horses .....	..	30
Arrived at <i>Utica</i> at 11 A. M., November 21st.		
Detained at Utica for provisions .....	..	15
Detained west of Rome, wedged in among a crowd of boats	4	10
Detained by finding four boats abreast in the canal; hauled them out	2	20
Arrived at <i>Syracuse</i> at 4 P. M., Nov. 22d.		
Detained at Syracuse to clear the screw	1	..
Detained by a line in the screw .....	..	45
Detained at Oswego lock; lock-tenders asleep	4	..
Arrived at <i>Oswego</i> at 9.30 A. M., November 23d.		

Total detentions claimed	30	30
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Coal consumed from New York to Oswego, 10 $\frac{1}{2}$ tons.

Deductions.

	Days.	Hours.	Min.
Total time from West Troy	4	10	30
	Days.	Hours.	Min.
Detentions claimed.....	1	6	30
Add for lockage .....	..	10	30
	1	17	..
Running time	2	17	30

or 65½ hours; distance 197 miles.

Average speed	3	miles per hour.
Average speed, including lockages.....	2.59	miles per hour.
Average speed, including all detentions	1.85	miles per hour.
Running time on the river	29.5	hours.
Average speed	4.88	miles per hour.
Average coal consumption per mile between New York and Oswego.....	60.5	pounds.

Average speeds between the several prominent points, exclusive of all detentions claimed and eight minutes for each lock passed.

	Distance. Miles.	Running time. Hours.	Min.	Average speeds. Miles per hour.
Troy to Schenectady	23	8	25	2.73
Schenectady to Utica.....	80	28	31	2.81
Utica to Syracuse	56	17	3	3.28
Syracuse to Oswego	38	9	21	4.07

THIRD TRIP EAST.

Left Oswego at 10.30 P. M., November 26th, 1872; cargo 597 barrels of flour; weight 64.47 tons. Could not get full cargo on account of lateness of the season.

	DETENTIONS. Hours.	Min.
Detained at Fulton taking on 447 barrels of flour, making 112½ tons.....	14	30
Detained at Phoenix, clearing and paying toll .....	..	30
Arrived at Syracuse at 2.30 A. M., November 28th.		
Detained at Syracuse, had to back out of weigh-lock..	..	30
Detained at Rome, telegraphing and preparing for ice,	1	..
Arrived at Utica at 11.50 P. M., November 28th.		
Detained at night in consequence of running at full speed upon a sunken canal boat; received severe shock and sprung a leak.....	..	15
Arrived at Fultonville at 4.50 P. M., November 29th.		
Total detentions claimed.....	16	45

Coal consumed, 7,500 pounds.

The "Hemje" afterward proceeded as far as Port Jackson, where she is laid up for the winter. Her passage from Fultonville was so obstructed by ice, however, that it is not deemed just to include that part of the trip.

Deductions.

	Days.	Hours.	Min.
Total time from Oswego	2	18	20
		Hours.	Min.
Detentions claimed.....		16	45
Add for lockage.....		5	..
			.. 21 45
Running time	1	20	35

or 44 $\frac{7}{8}$ hours; distance 148 miles.

Average speed.....	3.32 miles per hour.
Average speed, including lockage.....	2.99 miles per hour.
Average speed, including all detentions.....	2.23 miles per hour.
Average coal burned per mile.....	50 pounds.

Average speeds between prominent points on the canal, exclusive of all detentions claimed, and eight minutes for each lock passed :

	Distance. Miles.	Running time.		Aver. speeds.
		Hours	Min.	Miles per hour.
Oswego to Syracuse.....	38	9	36	3.96
Syracuse to Utica	56	19	18	2.90
Utica to Fultonville	54	14	45	3.66

SUMMARY OF RESULTS FOR THE SEVERAL ENTIRE TRIPS.

NUMBER OF TRIPS.	Cargoes, tons.	TIMES.									Average speed, miles per hour.
		Total.			Detentions.			Running.			
		D.	H.	M.	D.	H.	M.	D.	H.	M.	
<i>On the canal.</i>											
First trip east, Buffalo to Troy	201.6	11	11	15	6	13	50	4	21	25	2.94
First trip west, Troy to Buffalo	140.0	6	23	0	2	16	4	4	6	56	3.35
Second trip east, Buffalo to Troy...	201.0	9	7	0	4	19	0	4	12	0	3.19
Second trip west, to Oswego	162.4	4	10	30	1	17	0	2	17	30	3.00
Third trip east, to Fultonville.....	112.75	2	18	30	..	21	45	1	20	35	3.32
<i>On the river.</i>											
First trip down.	201.6	..	..	..	..	..	..	1	5	30	4.90
First trip up	140.0	..	..	..	..	..	..	1	12	30	4.11
Second trip down	201.0	1	6	30	0	4	30	1	2	0	5.54
Second trip up	162.4	1	9	30	0	4	0	1	5	30	4.88

The three round trips of the "Hemje" will not be completed until she shall have completed her last trip to Troy, and returned to Buffalo. Attention is called to the fact that her first trip was commenced on the 27th of September, only two months before the season of navigation closed.

POWER EXPENDED, AND SLIP.

My opportunities for observing data, from which to estimate the power expended by the "Hemje's" engines, have been limited to the run from Syracuse to Canastota. During the evening of the 8th of November, after the boat had been aground over two hours, and when she was running with full steam, I made the following notes: Steam, 70 pounds, revolutions, 110 per minute, cut-off, half stroke. These data indicate an effective power of about 57.5 horses, which is largely in excess of the average power. The latter I estimate at 40 horses.

At 110 revolutions of the screw, the advance due to its pitch was $110 \times 6\frac{1}{2} = 715$ feet per minute, or 8.1 miles per hour.

As the average speed between Syracuse and Utica, exclusive of all detentions and lockages, was only 2.71 miles per hour, it is doubtless safe to assume that the speed of the boat was not greater than three miles per hour over the ground. Adding half a mile for the current, against which the boat was at that time running, we have three and one-half miles per hour or 308 feet per minute, as the speed of the boat through the water.

If, then, our assumptions are correct, the slip of the screw was $\frac{715 - 308}{715} \times 100 = 57$ per cent. That the speed of the boat is not underrated, is evident from the fact that on the following morning, when the screw was making from 120 to 130 revolutions, the boat was observed to be making just three miles per hour over the ground. It is also evident from the further fact that the running time from Lodi lock to Manlius, a distance of seven miles, was two hours and twenty minutes, indicating an average rate of three miles per hour. The data which have been used in the foregoing estimates of power and slip, were observed between the two last named points.

It thus appears that the slip of the "Hemje's" screw is excessive. An explanation of this is found partly in the size of the screw, the propelling surface of which is only about two-thirds that of the "Baxter's" two screws; and partly, I think, to the obstruction which the casing of the screw must offer to the water in its passage to the screw; especially when, as in the "Hemje," the lines are quite full at the stern. The pitch may, and doubtless does, have some effect upon the slip. It is interesting to note, in this connection, that the "Dawson's" screw, which is of the same diameter and nearly the same pitch as that of the "Hemje," and which also acts in a confined space, has a slip of 60.7 per cent, while making even less speed.

COAL CONSUMPTION.

I was not able, during the time I spent on board the "Hemje," to observe the amount of coal burned. The reported consumption, however, is sixty and one-quarter tons or 120,500 pounds. The distance steamed was as follows :

	Miles.
On the Hudson river.....	600
On the canal	1,380
Total	<u>1,980</u>

The average coal consumption per mile was, therefore,

$$\frac{120,500}{1,980} = 60.86 \text{ pounds.}$$

The total running time was 565 hours, which includes five hours for four runs between Troy and Albany. The coal consumption per hour was, therefore, apparently about 213 pounds. But in this result no account is taken of the coal which was consumed while the engine was idle ; in other words the entire coal consumption is treated as having taken place during the *running time* of the steamer.

As the machinery was idle much of the time, this hourly consumption and the consumption per mile, are both somewhat greater than they would have been had no detentions occurred. They are, however, the only results available for purposes of comparison, and for that reason they are taken simply as indices of the economy of the "Hemje's" engine, boiler and screw, as compared with the machinery of other steamers. Fair values for the power and hourly consumption of fuel of this steamer when running without detention, are believed to be forty to forty-five horses and 175 to 180 pounds, respectively.

GENERAL DEDUCTIONS.

Total boat miles.....	1980.
Boat miles on the canal.....	1380.
Boat miles on the river	600.
Total running time, hours.....	565
Running time on the canal, hours	438.43
Running time on the river, hours	126.57
Average speed on canal and river, miles.....	3.50
Average speed on the canal	3.15
Average speed on the river.....	4.73
Ton miles, including weight of boat.....	496,812.
Ton miles of cargo.....	341,688.
Total coal consumption, pounds.....	120,500

Coal consumption per boat mile, pounds.....	60.86
Coal consumption per ton mile, including boat.....	0.2428
Coal consumption per ton mile, cargo.....	0.3527
Cost of coal per boat mile (at \$5.50 per ton) cents....	16.74
Cost of coal per ton mile, including boat.....	0.0667
Cost of coal per ton mile, cargo.....	0.0960

It is to be distinctly understood that the above quantities and costs of coal apply to the entire run on canal and river, and that, under the circumstances, no estimates can be made which will be strictly correct for either, as distinct from the other. The results are, as before intimated, too large for the river, on account of the greater speed attained there, and too small for the canal.

AVERAGE SPEEDS FOR ALL THE TRIPS OVER SPECIAL SECTIONS OF THE CANAL.

Trips East.

BETWEEN	Dis- tance, miles.	AVERAGE SPEED—MILES PER HOUR.			
		First trip.	Second trip.	Third trip.	Means.
Buffalo and Rochester	93	3.47	3.87	.....	3.67
Rochester and Syracuse	93	2.88	2.75	.....	2.56
Syracuse and Utica.....	55	2.55	2.71	2.90	2.72
Utica and Schenectady	80	3.39	3.41	3.66 *	3.46
Schenectady and Troy.....	23	3.87	3.21	.....	3.29
Oswego and Syracuse.....	38	.....	.....	3.96	3.96

* To Fultonville only.

Trips West.

BETWEEN	Dis- tance, miles.	AVERAGE SPEED—MILES PER HOUR.			
		First trip.	Second trip.	Third trip.	Means.
Buffalo and Rochester	93	3.49	.....	..... *	3.49
Rochester and Syracuse	93	3.16	.....	.....	3.16
Syracuse and Utica	55	3.44	3.28	.....	3.36
Utica and Schenectady	80	3.67	2.81	.....	3.24
Schenectady and Troy.....	23	2.51	2.73	.....	2.62
Syracuse and Oswego.....	38	.....	4.07	.....	4.07

Trips East and West.

BETWEEN	Dis- tance, miles.	AVERAGE SPEED—MILES PER HOUR.		
		East.	West.	Means.
Buffalo and Rochester.....	98	3.67	3.42	3.54
Rochester and Syracuse.....	98	2.56	3.16	2.86
Syracuse and Utica.....	56	2.72	3.26	3.04
Utica and Schenectady.....	80	3.49	3.24	3.36
Schenectady and Troy	23	3.29	2.62	2.95
Syracuse and Oswego	88	3.96	4.07	4.01

The average speeds, deduced from the foregoing tables, are: East, 3.23 miles per hour; west, 3.32 miles per hour; both ways, 3.27 miles per hour. This last result exceeds that previously obtained by $3.27 - 3.15 = 0.12$ of a mile; the difference resulting from some trifling error in applying the detentions, or in estimating the number of locks between the several points limiting the special sections considered.

At 3.15 miles per hour, the time from Buffalo to Albany is 109.52 hours. Adding the ten hours allowed for lockage, the time is 119.52 hours, or four days 23.52 hours; and the average speed, including lockages, 2.88 miles per hour.

Adding, again, thirty hours for the run from Troy to New York, making 495 miles in all, the total time from Buffalo to New York is 149.52 hours, or six days 5.52 hours; and the average speed 3.31 miles per hour.

Thus it appears that the "Hemje," when free from the detentions caused by horse-boats and low water, may be relied upon to make the trip from Buffalo to New York in six days and six hours, at an average speed of 3.31 miles per hour, including lockages.

The machinery of the "Hemje" works admirably, and, at the close of the season, was in excellent condition, giving promise of the measure of endurance usually realized from such machinery.

V. Description and Performance of the Steamer "Fountain City."

The "Fountain City" is an old, full-modeled "lake boat;" is ninety-seven feet long, seventeen and a half feet wide, and weighs, with her boiler and machinery, 81.9 tons:

Her propellers, said to be the invention of her owner, Dr. Robert Hunter, of Cincinnati, consist of two feathering paddle wheels, placed under the quarters, aft, and revolving towards each other, on vertical axes. Each wheel is provided with four vertical paddles five feet

long, seven and a half inches wide at the top, and seventeen and a half inches wide at the bottom. The entire surface of all the blades is, therefore, forty-one and two-thirds square feet. The axes of the paddles revolve about the axes of the wheels, in circles, the diameters of which are two feet three inches. Upon the top of each wheel is placed a system of seven toothed wheels, which are disposed as follows: The first wheel is placed loose upon the main shaft of the wheel, permitting the latter to revolve while the former remains at rest. This wheel meshes into two other wheels at points diametrically opposite, each of which in turn meshes into two wheels of the same size, keyed to the axes of the paddles. The last six wheels revolve with the paddle wheel about the central wheel, and, at the same time, about their own axes.* Motion is communicated from the steering wheel, through the shafts and miter wheels, to the loose wheels upon the paddle shafts, by which the steersman is enabled to adjust and regulate the pitch of the paddles and to direct the resultant propelling action of the wheels at will. By this arrangement the rudder is dispensed with, and the steersman, by simply changing the pitch of the paddles, is enabled not only to steer the boat but to reverse the action of the paddle wheels at will, and without reversing the engines.

The engines of the "Fountain City" are two in number, non-condensing, having cylinders twelve inches in diameter by ten inches stroke of piston. The cylinders are placed back to back with their axes athwart-ship, and are located at the stern directly over the paddle wheels.

The boiler is horizontal, return-tubular, eight feet six inches long, four feet six inches in diameter, and has sixteen square feet of fire grate.

This steamer has not completed her three round trips, for reasons stated by the inventor in a communication addressed to the chairman of the Commission, in which he says: "This boat, known as the 'Fountain City,' I fitted out with a device which possessed great propelling power, but proved, on being subjected to actual work, not to be sufficiently manageable for canal purposes. This compelled me to make a radical change in my invention, and threw me too late into the past summer for me to complete three round trips before the canal closed. In my efforts to hasten the construction of my new device, a grave mistake was made in calculating the required strength of the shafts, which could not afterward be remedied for want of

* The diameters of the last six wheels are equal, and are double that of the first wheel.

time. This prevented me from using that pressure of steam generally used by competing boats, and which would have added correspondingly to our speed."

Certified copies of the several clearances of the "Fountain City," together with a complete log—the latter duly verified—have been furnished by Mr. R. J. O. Hunter, a son of the owner and inventor, who commanded the steamer. From these the following condensed statements have been made up:

FIRST TRIP EAST.

Left *Buffalo* at eight A. M., September 17th, 1872. Cargo, 180 tons of coal.

	Durations. Hours. Min.	
Detained at Lower Black Rock waiting for one of the crew	1	..
Detained at Tonawanda by a sunken boat across the canal	4	45
Detained at Lockport packing pistons	1	15
Detained at Albion for stores .....	..	10
Detained at Brockville; boat leaking badly; shifted cargo to allow water to run to pumps	1	10
Detained at Hulberton by breaking "strap" and valve-stem	1	30
Detained at Brockport for repairs	7	10
Ran from Hulberton to Brockport, eight miles, with one wheel, in three hours fifty minutes.		
Detained at Brockway's, "strap" again broken .....	..	30
Arrived at <i>Rochester</i> at 6 A. M., September 19th.		
Ran from Brockway's to Rochester with one wheel.		
Detained at Rochester for repairs	16	30
Detained at Palmyra by pillar blocks heating; took them out and filed them	1	..
Detained at Newark by feed-pumps ceasing to work; fires were drawn, boiler blown off, and filled by hand,	6	20
Detained at Lyons; pumps out of order; mud in boiler,	5	..
Detained at Clyde; holding down bolts in port pillar; block broken	1	30
Detained at Montezuma, trying to get bolts	2	35
Arrived at <i>Syracuse</i> at 8.10 A. M., September 22d.		
Ran from Clyde to Syracuse with one wheel.		
Detained at Syracuse; bolts made and fitted; laid over Sunday	28	50
Detained at Lodi; bolts badly fitted; sent back to be refitted	6	25
Detained at Bolivar, aground	1	30
Detained at Durhamville, crank broken	3	30
Detained at Rome, trying to get repairs	3	30
Arrived at <i>Utica</i> at 5 A. M., September 25th.		

	DETENTIONS.	
	Hours.	Min.
Ran from Durhamville, thirty miles, in seventeen hours, with one wheel.		
Detained at Utica for new crank	14	15
Detained at Canajoharie by broken crank-pin .....	..	50
Ran from Canajoharie to Schenectady, thirty-eight miles, in twenty-four hours and fifty-six minutes, with one wheel.		
Arrived at <i>Schenectady</i> at 5 A. M., September 27th.		
Detained at Schenectady for new crank-pin	13	40
Arrived at <i>West Troy</i> at 4.30 A. M., September 28th.		
Total detentions claimed	122	55
Coal consumption, fourteen tons.		

Deductions.

	Days.	Hours.	Min.
Total time from Buffalo	10	20	30
	Days.	Hours.	Min.
Detentions claimed	5	2	55
Add for lockage .....	..	10	..
	5	12	55
Running time	5	7	35
or 127 $\frac{7}{12}$ hours; distance 345 miles.			

	Miles per hour.
Average speed	2.7
Average speed, including lockage	2.51
Average speed, including all detentions	1.32

The following shows the times and distances between points where detentions are noted. It serves as a check upon the accuracy of the above results for the whole trip (runs with one wheel not included):

	Distance. Miles.	Time. Hours.	Min.
Buffalo to Lower Black Rock	4	1	..
Lower Black Rock to Tonawanda	8	2	..
Tonawanda to Lockport	19	5	..
Lockport to Albion	28	8	..
Brockport to Brockway's	10	3	30
Rochester to Palmyra	27	11	5
Lodi to Bolivar	13	4	10
Bolivar to Durhamville	12	3	30
Utica to Little Falls	23	13	45
Little Falls to Canajoharie	19	6	15
Schenectady to Cohoes	19	5	50
Totals	182	64	5

The average speeds over special sections of the canal, exclusive of all detentions and eight minutes for each lock passed, were :

	Distance. Miles.	Running time. Hours.	Min.	Average speeds Miles per hour.
Buffalo to Rochester.....	93	27	42	3.36
Rochester to Syracuse	93	39	07	2.33
Syracuse to Utica	56	24	33	2.36
Utica to Schenectady	80	29	51	2.68
Schenectady to Troy	23	7	10	3.21

FIRST TRIP WEST.

Left *West Troy* at 12.47 P. M., October 16th, 1872. Cargo, 132½ tons railroad iron.

	Detentions	
	Hours.	Min.
Detained at Crescent for stores.....	..	30
Detained at Upper Aqueduct, exhaust pipe broken...	1	30
Arrived at <i>Schenectady</i> at 3.30 A. M., October 17th.		
Detained at Schenectady for repairs	13	10
Detained at Auriesville, lock too short .....	..	45
Detained near Fultonville, boats aground.....	2	30
Detained at Spraker's cleaning fires.....	1	10
Detained at Fort Plain for coal	2	40
Detained at East Canada creek, aground .....	..	30
Arrived at <i>Utica</i> at 12.20 P. M., October 19th.		
Detained at Utica cleaning fires.....	..	30
Detained at Oriskany, cleaning fires .....	..	45
Detained four miles below Rome, line in wheel.....	3	..
Ran with one wheel to Durhamville; detained at Durhamville removing line	3	22
Detained at Canastota, cleaning fires.....	.	40
Detained at Manlius, cleaning fires .....	..	30
Arrived at <i>Syracuse</i> at 9.20 P. M., October 20th.		
Detained at Syracuse, cleaning fires.....	..	40
Detained at Jordan by boats aground .....	..	28
Detained at Montezuma for coal	10	30
Detained at Clyde for coal	13	15

NOTE.—The boat, in charge of the engineer, exhausted her supply of coal at Montezuma, while the captain was awaiting her arrival at Clyde; waited at Montezuma until the captain arrived, when half a ton of coal was taken, and the boat proceeded to Clyde where four tons were taken.

Detained at Lyons, waiting for lock.....	1	30
Detained at Newark by boats aground	2	50
Detained at Waynesport by boats aground.....	3	..
Detained at Fairport, cleaning fires.....	..	30

	DETENTIONS.	
	Hours.	Min.
Detained at lock sixty-five, aground.....	..	25
Arrived at <i>Rochester</i> at 3.20 P. M., October 23d.		
Detained at Rochester for stores and to clean fires....	1	05
Detained at Adams' Basin by boats aground.....	3	30
Detained at Holly	2	..
Detained at Brockville, shifting cargo, boat leaking ...	3	..
Detained at Albion for wood and stores	1	50
Detained at Eagle Harbor, aground.....	1	45
Detained at Shelby's basin, cleaning fires.....	..	55
Detained at Gasport, cleaning fires	1	05
Detained at Lockport by boats aground	4	..
Detained at Pendleton by boats aground	1	20
Detained at Martinsville by boats aground	1	50
Detained at Tonawanda for oil and to clean fires.....	..	45
Detained at Lower Black Rock	1	50
Detained at Black Rock, boats aground	1	..
Arrived at <i>Buffalo</i> at 12.30 A. M., October 26th.		

Total detentions claimed.....	90	35
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Coal consumption, sixteen tons.

Deductions.

	Days.	Hours.	Min.
Total time from West Troy	9	11	43
	Days.	Hours.	Min.
Detentions claimed.....	3	18	35
Add for lockages.....	..	10	..
	4	4	35
Running time	5	7	8

or $127\frac{2}{3}$ hours; distance 345 miles.

	Miles per hour.
Average speed.....	2.71
Average speed, including lockage	2.52
Average speed, including all detentions	1.51

Runs between points where detentions were noted.

	Distance. Miles.	Time. Hours.	Min.
Schenectady to Port Jackson	16	5	55
Fort Plain to East Canada creek	11	5	5
Little Falls to Utica	23	12	2
New Boston Landing to Manlius	9	3	28
Manlius to Syracuse	8	3	10
Syracuse to Jordan.....	19	7	54
Jordan to Montezuma	14	4	38
Fairport to lock 65.....	8	3	20
Rochester to Adams' Basin.....	15	4	50

	Distance. Miles.	Time. Hours. Min.	
Shelby's Basin to Gasport	9	2	15
Gasport to Lockport	6	1	55
Pendleton to Martinsville	8	2	10
Totals	146	56	42

Average speed, including lockage, 2.57 miles per hour.

The average speeds over special sections of the canal, exclusive of all detentions claimed and of eight minutes for each lock passed, were:

	Distance. Miles.	Running time. Hours. Min.		Average speeds. Miles per hour.
Troy to Schenectady	23	10	3	2.29
Schenectady to Utica	80	33	1	2.42
Utica to Syracuse	56	23	41	2.37
Syracuse to Rochester	93	30	44	3.02
Rochester to Buffalo	93	31	27	2.98

Attention is called to the detentions claimed for stopping to "clean fires." Steamers do not ordinarily lay up or stop their machinery for the purpose of cleaning fires, although the steam pressure generally falls, temporarily, during that process. Of course the "Fountain City" made better speed than she would have done had the fires been cleaned while she was in motion.

I accompanied this steamer, while on this trip, from West Troy to a point just below lock 21, at which point I joined the "Baxter," as already stated. The run from West Troy to the head of the sixteen locks at Cohoes was made in three hours and fifty-three minutes, which is about ten minutes less than the time occupied by any other steamer, so far as I have observed, in making the same run. The boat was under perfect and easy control of the steersman, who was able to reverse the action of the paddle wheels and to back in less time than is ordinarily required to stop and reverse an engine. The boat could, I think, be turned in her length, in open water, without difficulty.

The engines were very poor, and, owing to imperfect design and construction, insufficient strength, and rigidity in their parts, together with the severe character of the work required of them, were the cause of much anxiety and trouble. The cylinders were entirely without protection, and hence were a source of great loss of heat and waste of fuel. The boiler, also, was without adequate protection.

SECOND TRIP EAST.

Left *Buffalo* at 4.30 P. M., November 10th, 1872, with the boat "J. Holmes," laden with 1,200 barrels of oil, in tow. Cargo of the "Fountain City," 162 tons of coal, shooks and stone.

In going down the river to Tonawanda, ran on Strawberry island; put engines out of order, straining them badly; laid all night.

	DETENTIONS.	
	Hours.	Min.
Detained at Tonawanda to repair damage.....	44	20
Detained at Pendleton, aground.....	3	..
Detained at Lockport, waiting for locks.....	1	..
Detained at Gasport for water and stores.....	..	35
Detained at Middleport, packing pistons.....	3	40
Detained at Hindsburgh, connecting-rod of port-engine bent.....	1	30
Detained at Brockport, trying to get rod straightened..	1	15
Arrived at <i>Rochester</i> at 10.45 P. M., November 14th.		
Ran from Hindsburgh to Rochester, 30 miles, with one wheel, in 12 hours and 20 minutes.		
Detained at Rochester, waiting to see parties about towing another boat, and for repairs.....	15	..
Detained at Brighton, aground.....	3	12
Detained at lock 65, aground.....	2	48
Detained at Bushnell's basin, aground.....	3	27
Detained at Fairport, aground.....	7	30
Detained at Macedon, waiting for lock.....	2	..
Detained at Palmyra, to see parties in regard to the "Holmes".....	2	..
Detained at Newark, aground.....	2	03
Detained at E. Arcadia, waiting for lock.....	..	48
Detained at Lyons, by lock.....	1	25
Detained at Lock Berlin by boats aground.....	16	30
Detained at Clyde, engineer arrested.....	36	45
At Clyde the "Holmes" was abandoned, she having been found to draw 6 feet 4 inches.		

Arrived at *Clyde* at 9 A. M., November 8th.

Left Clyde at 9.45 P. M., November 19th.

Detained at Port Byron, aground.....	1	30
Detained at Weedsport for water, and to clean fires...	..	45
Detained at Cold Spring to pack pistons.....	1	38
Detained at Canton, cleaning fires.....	..	45
Detained at Camillus, starboard engine disabled.....	2	..
Detained at Belle Isle, at lock.....	1	..

Arrived at *Syracuse* at 12.05 P. M., November 21st.

Ran from Camillus to Syracuse with one wheel.

Detained at Syracuse, coaling and repairing.....	25	..
Detained at Orville feeder, aground.....	1	03
Detained at Limestone feeder, port-shaft broken.....	1	05
Detained at Manlius, for repairs.....	74	25

	DETENTIONS.	
	Hours.	Min.
Detained at New Boston Landing, aground.....	3	10
Detained at Rome for stores and to clean fires.....	1	15
Detained at Whitesboro, boat across the canal.....	..	10
Arrived at <i>Utica</i> at 7.20 P. M., November 26th.		
Detained at Utica to clean fires .....	..	45
Detained at Canajoharie, repairing pillar block bolts, port-side	5	..
Detained below Sprakers', waiting for lock.....	..	20
Detained at Hoffman's Ferry, aground.....	..	30
Arrived at <i>Schenectady</i> at 10.30 A. M., Nov. 28.		
Detained at Schenectady, for wood and to clean fires..	1	40
Detained at Cohoes by boats aground.....	2	..
Arrived at <i>West Troy</i> at 12.15 A. M., Nov. 29th.		

Total detentions claimed.....	272	49
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Coal consumption, 20 tons.

Deductions.

As a tow was brought as far as Clyde, only that part of the trip between that point and Troy will be considered.

	Days.	Hours.	Min.
Total time from Clyde to Troy.....	9	2	30
	Days	Hours.	Min.
Detentions claimed.....	5	4	1
Add for lockage	7	4
	5	11	5

Running time	3	15	25
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or $87\frac{5}{12}$ hours; distance 203 miles.

Average speed.....	2.32 miles per hour.
Average speed, including lockage.....	2.15 miles per hour.

As the running time from Clyde to Troy was very nearly equal to that from Buffalo to Clyde, the coal consumption of 20 tons, between Buffalo and Troy, is divided equally between the two runs, and that between Clyde and Troy put at 10 tons.

Runs between points where detentions are noted.

	Distance. Miles.	Time.	
		Hours.	Min.
Clyde to Montezuma	11	5	15
Port Byron to Weedsport	4	1	15
Peru to Canton.....	5	2	15
Manlius to New Boston Landing.....	9	3	10
New Boston Landing to Rome.....	24	10	15
Rome to Whitesboro	11	2	50
Whitesboro to Utica	4	1	5

	Distance. Miles.	Time. Hours. Min.	
Utica to Little Falls.....	23	8	55
Little Falls to Fort Plain	16	5	45
Spraker's to Fultonville.....	9	2	35
Fultonville to Schenectady	26	11	..
Upper Aqueduct to Cohoes.....	19	6	20
	<u>161</u>	<u>60</u>	<u>40</u>

Average speed, including lockage..... 2.65 miles per hour.
Deducting 4 hours and 24 minutes for lockage,
the running time is 56 hours 16 minutes, and
the average speed 2.86 miles per hour.

The average speeds over special sections of the canal, exclusive of lockage, and of eight minutes for each lock passed, were :

	Distance. Miles.	Running time. Hours. Min.		Aver. speeds. Miles per hour.
Clyde to Syracuse.....	44	30	10	1.46
Syracuse to Utica	56	20	35	2.68
Utica to Schenectady.....	80	29	30	2.71
Schenectady to Troy	23	7	25	3.03

SUMMARY OF "FOUNTAIN CITY'S" TRIPS.

NUMBER OF TRIPS.	Cargoes, tons.	Times.									Average speed, miles per hour.
		Total.			Detentions.			Running.			
		D.	H.	M.	D.	H.	M.	D.	H.	M.	
First trip east	180.0	10	20	30	5	12	55	5	7	35	2.70
First trip west	182.5	9	11	48	4	4	35	5	7	8	2.71
Second trip east *	162.0	18	7	45	11	18	49	6	12	56	2.19
Clyde to Troy	162.0	9	2	30	5	11	5	8	15	25	2.82

POWER EXPENDED.

On the 16th of October, I noted the performance of the engines of the "Fountain City," between Cohoes and Crescent. The run from the head of the sixteen locks to a point about a quarter of a mile beyond Crescent was made in one hour and twenty minutes. At the time of my observations the boat was making about two and three-quarter miles per hour, which may be taken as a fair average of the speed attained during the several trips. The steam pressure was sixty pounds, and the revolutions seventy-five per minute, indicating a power of about forty-five horses, in which a slight allowance is made for the uncertain effects of throttling.

In the absence of an accurate plan of the paddle-wheels, I have not

* Tow to Clyde.

been able to investigate their action far enough to enable me to say what their slip was. That it was large, however, is obvious from a consideration of the cargo, power and speed; unless it be admitted that a considerable portion of the power was expended laterally, and thus lost.

COAL CONSUMPTION.

During the first round trip and the run from Clyde to Troy, an aggregate of 893 miles, the coal consumption was about forty tons, or 80,000 pounds. The coal consumption per mile was, therefore, 89.6 pounds. That this excessive rate is due, in part, to the long delays experienced, and to the unavoidable consumption of fuel while the engines were idle, is quite true, but, as these delays were incidental to the peculiar machinery employed, we have no alternative but to adopt it in our comparisons.

GENERAL DEDUCTIONS.

Number of single trips made	3
Distance steamed on the canal, exclusive of towing, miles.....	893
Total tons carried.....	474.5
Total tons carried east.....	342
Total tons carried west.....	132.5
Average cargo east, tons	171
Average cargo west, tons.....	132.5
Total ton miles, of boat and cargo.....	213,835
Total ton miles of cargo	140,698
Total coal consumption, tons.....	40
Total coal consumption per boat mile, pounds.....	89.6
Total coal consumption per ton mile, including boat,	0.374
Total coal consumption per ton mile, cargo	0.569
Cost of coal per boat mile (coal \$5.50 per ton), cents,	24.63
Cost of coal per ton mile, including boat, cents.....	0.1028
Cost of coal per ton mile, cargo.....	0.1564
Average horse-power employed	40 to 45

SUMMARY OF SPEEDS OVER SPECIAL SECTIONS OF THE CANAL.

Trips East.

BETWEEN.	Distance, miles.	AVERAGE SPEED—MILES PER HOUR.		
		First trip.	Sec'nd trip.	Means.
Buffalo and Rochester.	93	3.36	Tow.	3.36
Rochester and Syracuse.....	93	2.38	Tow to Cl'e.	2.38
Syracuse and Utica	56	2.36	2.68	2.52
Utica and Schenectady.....	80	2.68	2.71	2.69
Schenectady and Troy	23	3.21	3.03	3.12

Only a single western trip was made.

Trips East and West.

BETWEEN.	Distance, miles.	AVERAGE SPEED—MILES PER HOUR.		
		East.	West.	Means.
Buffalo and Rochester.....	93	3.86	2.98	3.17
Rochester and Syracuse.....	93	2.80	3.02	2.70
Syracuse and Utica.....	56	2.52	2.87	2.44
Utica and Schenectady.....	80	2.69	2.42	2.55
Schenectady and Troy.....	23	3.12	2.29	2.70

The average speed for the entire distance steamed on the canal, exclusive of all detentions claimed, and of eight minutes for each lockage, appears from the above to have been 2.75 miles per hour. This result is, however, affected favorably by currents, as there were two trips in the direction of the prevailing current, and but one against the current.

VI. Description and Performance of the Steamer "Port Byron."

The "Port Byron" is a full sized boat, ninety-seven feet long, seventeen feet four inches wide, and weighing, with her machinery, eighty and one-tenth tons. She was built at Rochester, by F. M. Mahan, Esq., of Memphis, Tennessee, and Capt. Primus Emerson of St. Louis, Missouri, by whom she is now owned.

The only peculiarity in the model of the "Port Byron" consists in a *concave* bow below load-water line and a rectangular trunk extending from bow to stern, along the centre of the bottom of the boat. This trunk is twenty-four inches wide, twelve inches deep and terminates at the stern, in a recess cut for the reception of the paddle wheel. The recess is cut in the center of the stern and is ten feet six inches long in a fore and aft direction, by three feet eight inches wide.

The paddle wheel—said to be the invention of Captain Emerson—does not differ in any essential particular from the ordinary "feathering" paddle wheel. Its diameter to the axis of the paddles, is ten feet. The paddles are eight in number, are three feet six inches long by two feet four inches wide, and are made of boiler iron. The main shaft is so placed that, at six feet draft of water, its axis is eight inches above the water.

The motive power is furnished by two horizontal non-condensing engines, which are, of course, connected with the crank-shaft at right angles, to avoid difficulty from stopping "on the center." The cylinders are twelve inches in diameter, and the stroke of piston is twenty-four inches.

No note has been made of the general dimensions or details of the boiler, except that it has two furnaces, each four feet long by one foot eight inches wide, containing an aggregate of thirteen and one-third square feet of grate surface.

The "Port Byron" has completed her three round trips. The first was commenced on the 2d of July—after extensive repairs had been made at the works of Messrs. Skinner & Arnold of Albany—and the third was completed on the 19th of November. The total time occupied in making the three trips was, therefore, four and one-half months.

Certified copies of most of the clearances have been furnished, as well as a detailed statement of the detentions; the latter being duly verified by the oath of Captain Emerson. From these the usual condensed log is made, as follows:

FIRST TRIP WEST.

Left *West Troy* at 6.20 P. M., July 2d, 1872. Cargo 100 tons of stores.

	DETENTIONS.	
	Hours.	Min.
Detained at Lock 12, waiting to lock .....	..	30
Detained at Lock 13, waiting to lock	1	..
Detained west of Lock 16, altering smoke-stack	15	25
Arrived at <i>Schenectady</i> July 3d.		
Detained at Schenectady without an engineer.....	12	..
Detained west of Schenectady, aground.....	1	30
Detained at Fultonville, waiting for an engineer to arrive from Albany.....	17	30
Detained at Spraker's, repairing pump.....	5	..
Detained at Canajoharie for water.....	..	30
Detained at Little Falls, waiting to lock.....	..	45
Arrived at <i>Utica</i> July 6th.		
Detained at Utica, cleaning boiler.....	6	30
Detained at Rome by a crowd of boats.....	1	30
Arrived at <i>Syracuse</i> July 7th.		
Detained at Syracuse, Sunday	16	15
Detained at Montezuma, repairing crank pin key (?)...	4	..
Detained at Clyde waiting for coal	4	30
Detained at Macedon by boats aground.....	20	..
Arrived at <i>Rochester</i> July 11th.		
Detained at Rochester, repairing steam-pipe	14	30
Detained at Brockport by leaky flues.....	1	..
Detained at Lockport, calking	3	..
Detained at Tonawanda by fog.....	7	..
Detained, waiting for coal	4	30
Arrived at <i>Buffalo</i> at 10.10 A. M., July 14th.		
Total detentions claimed.....	136	55

Deductions.

	Days.	Hours.	Min.
Total time from West Troy.....	11	15	20
	Days.	Hours.	Min.
Detentions claimed.....	5	16	55
Add for lockage .....	..	10	..
	6	02	55
Running time	5	12	55

or 132 $\frac{1}{2}$ hours; distance 345 miles.

	Miles per hour.
Average speed	2.59
Average speed including lockage.....	2.42
Average speed, including all detentions	1.23

The hours of arrival at intermediate points not having been recorded, except in a very few instances, I am unable to indicate the speeds over special sections of the canal or between points where detentions occurred, as has been done in other cases.

FIRST TRIP EAST.

Left *Buffalo* at 4.40 p. m., July 24th, 1872. Cargo 7,150 bushels of corn; weight 200 $\frac{1}{2}$ tons.

	DETENTIONS.	
	Hours.	Min.
Detained at Fort Erie, unshipped rudder on a rock in middle of canal.....	10	20
Detained west of Lockport, repairing a paddle.....	5	30
Detained at Lockport.....	1	45
Detained at Middleport.....	5	30
Detained at Brockport, coaling.....	4	..
Detained above Spencerport.....	3	30
Arrived at <i>Rochester</i> July 27th.		
Detained at Rochester putting on new buckets	90	45
Detained at 4-mile grocery for water.....	..	30
Detained at lock 66 waiting to lock.....	..	30
Detained at Macedon, aground, 5 feet 9 inches of water in middle of canal	10	..
Detained at Palmyra, coaling.....	1	..
Detained at Arcadia, waiting to lock.....	1	05
Detained at Lyons, waiting to lock	1	10
Detained at Clyde, waiting to lock	1	30
Detained east of Clyde, aground, 5 feet 6 inches of water in middle of canal.....	8	..
Detained at Port Byron, on dock	44	..
Detained at Jordan, repairing crank	10	..
Arrived at <i>Syracuse</i> August 5th.		
Detained at Syracuse, putting on new cranks.....	131	55

	DETENTIONS.	
	Hours.	Min.
Detained at Rome, repairing smoke-stack	18	..
Arrived at <i>Utica</i> August 13th.		
Detained at Utica, repairing rudder	5	..
Detained at lock 25 ; broke wheel on a log in bottom of canal	13	..
Arrived at <i>Schenectady</i> August 15th.		
Detained at Schenectady, repairing wheel	46	15
Arrived at <i>West Troy</i> at 8 A. M., August 18th.		
Total detentions claimed	413	15

Deductions.

	Days.	Hours.	Min.
Total time from Buffalo	24	15	20
	Days.	Hours.	Min.
Detentions claimed	17	5	15
Add for lockage . . . . .	..	10	..
	17	15	15
Running time	7	..	5

or 168 $\frac{1}{2}$ hours ; distance 345 miles.

	Miles per hour.
Average speed	2.05
Average speed, including lockages	1.94
Average speed, including all detentions . . . . .	.51

SECOND TRIP WEST.

Left *West Troy* at 3.30 P. M., September 20th, 1872. Cargo, 126 tons of pig iron and cement.

	DETENTIONS.	
	Hours.	Min.
Detained to pack piston	3	30
Detained in sixteen locks, waiting to lock	3	20
Detained at Port Gibson, coaling	1	..
Detained west of Fultonville, on account of sunken boat and boats bound east	5	..
Detained at Canajoharie by crowd of boats	3	30
Detained at Little Falls, waiting for lock	2	30
Detained west of Little Falls by fog	4	30
Arrived at <i>Utica</i> , September 23d.		
Detained at Utica for coal	4	30
Detained at Rome for stores . . . . .	..	20
Detained west of Higginsville, boats aground	6	..
Detained at Manlius for water . . . . .	..	30
Detained at Canastota for wood	1	..
Arrived at <i>Syracuse</i> , September 25th.		
Detained at Syracuse, unshipped rudder	18	..
Detained at Geddes, cleaning flues	4	..

	DETENTIONS.	
	Hours.	Min.
Detained at Clyde, waiting for lock	2	..
Detained at Lyons, waiting for lock	2	30
Detained at Palmyra, boats aground	5	..
Detained at locks 63, 64 and 65, waiting to lock	1	35
Arrived at <i>Rochester</i> , September 27th.		
Detained at Rochester, waiting for coal	12	30
Detained at Brockport by crowd of boats	3	30
Detained at Middleport for wood and water	1	30
Detained at Orangeport by boats aground	2	..
Detained at Lockport, calking flues	18	..
Arrived at <i>Buffalo</i> at 4 A. M., October 1st.		
Total detentions claimed	106	15

Deductions.

	Days.	Hours.	Min.
Total time from Troy	10	12	30
	Days.	Hours.	Min.
Detentions claimed	4	10	15
Add for lockage .....	..	10	..
	4	20	15
Running time	5	16	15

or $136\frac{1}{4}$ hours; distance 345 miles.

	Miles per hour.
Average speed	2.53
Average speed, including lockage	2.29
Average speed, including all detentions	1.37

SECOND TRIP EAST.

Left *Buffalo* at 3.20 P. M., October 10th, 1872. Cargo, 7,150 bushels of corn; weight, $200\frac{1}{2}$ tons.

	DETENTIONS.	
	Hours.	Min.
Detained at Tonawanda, waiting to lock .....	..	25
Detained at Lockport, waiting to lock .....	..	40
Detained at Medina, aground	2	25
Detained at Brockport, for coal	1	20
Arrived at <i>Rochester</i> October 12th.		
Detained at Rochester to transact business	2	20
Detained at locks 65, 64, 63 and 62, waiting	1	30
Detained at Pittsford by crowd of boats	2	..
Detained at Bushnell's, aground, 5 feet 7 inches water,	4	30
Detained east of Lyons, aground	4	..
Detained at Clyde	2	30
Detained at Jordan for coal	3	..
Arrived at <i>Syracuse</i> October 15th.		
Detained at Syracuse to repair wheel, broken by log in bottom of canal	19	50

	DETENTIONS.	
	Hours.	Min.
Detained at lock 35, waiting to lock .....	..	35
Detained at lock 34, waiting to lock .....	..	45
Detained at lock 33, waiting to lock .....	..	40
Detained between locks 34 and 33, aground, water only 5 feet 10 inches.....	1	..
Detained at Durhamville for coal.....	1	35
Detained at Rome, aground, 5 feet 9 inches water....	3	..
Detained west of Utica, aground	3	30
Detained east of Frankfort, aground.....	2	10
Detained at Mindenville by boats aground.....	2	..
Detained at Fultonville for coal	3	45
Detained at Canajoharie by crowd of boats.....	4	40
Detained west of lock 22, aground, 5 ft. 8 in. water..	4	..
Arrived at <i>Schenectady</i> October 19th.		
Detained at Schenectady, cleaning boiler	2	..
Detained in 16 locks, waiting to lock	2	5
Arrived at <i>West Troy</i> at 7 P. M., October 19th.		
Total detentions claimed	76	15

Deductions.

	Days.	Hours.	Min.
Total time from Buffalo.....	9	3	40
	Days.	Hours.	Min.
Detentions claimed.....	3	4	15
Add for lockage .....	..	10	..
	3	14	15
Running time	5	13	25
or 133 $\frac{5}{8}$ hours; distance 345 miles.			

Average speed	2.58 miles per hour.
Average speed, including lockage	2.40 miles per hour.
Average speed, including all detentions.....	1.57 miles per hour.

THIRD TRIP WEST.

Left *West Troy* at 5.30 P. M., October 29, 1872. Cargo, 117 tons iron ore.

	DETENTIONS.	
	Hours.	Min.
Detained at lock 2, waiting to lock .....	..	30
Arrived at <i>Schenectady</i> at 3.45 A. M., October 30th.		
Detained at Spraker's for water.....	..	35
Arrived at <i>Utica</i> at 9.40 A. M., October 31st.		
Detained at Whitesboro for wood .....	..	45
Detained east of Rome for coal.....	1	..
Arrived at <i>Syracuse</i> at 4 A. M., November 1st.		
Detained at Syracuse, waiting at locks	1	30
Detained at Jordan for coal	3	..
Detained at Port Byron, waiting to lock .....	..	40

	DETENTIONS.	
	Hours.	Min.
Detained east of Pitt lock, by boats aground	40
Detained at Lockville, waiting to lock.....	..	30
Detained at Macedon, waiting to lock.....	..	35
Detained at lock 62, waiting to lock	40
Detained at lock 63, waiting to lock	25
Detained at lock 64, waiting to lock	20
Detained at locks 65 and 66, waiting to lock.....	..	40

Arrived at *Rochester* at 4.30 P. M., November 2d.

Detained at Rochester for coal.....	2	..
Detained at Albion for swing-bridge.....	..	30
Detained at Holly for wood and water	1	..
Detained at Middleport for coal.....	4	40
Detained at Lockport, waiting to lock.....	..	30
Passed through Lockport locks in 25 minutes.		

Arrived at *Buffalo* at 4 A. M., November 4th.

Total detentions claimed.....	20	30
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Deductions.

	Days.	Hours.	Min.
Total time from West Troy	5	10	30
	Days.	Hours.	Min.
Detentions claimed.....	..	20	30
Add for lockage .....	..	10	..
	1	6	30
Running time	4	4	..

or 100 hours; distance, 345 miles.

Average speed.....	3.45 miles per hour.
Average speed, including lockage.....	3.14 miles per hour.
Average speed, including all detentions.....	2.64 miles per hour.

THIRD TRIP EAST.

Left *Buffalo* at 11.30 A. M., November 10th, 1872. Cargo, 6,550 bushels of corn and 15 tons of coal; weight, 198 $\frac{4}{16}$ tons.

	DETENTIONS.	
	Hours.	Min.
Detained at Tonawanda by crowd of boats.....	9	10
Detained at Tonawanda creek by wreck in middle of creek	12	..
Detained at Lockport locks, waiting to lock.....	..	40
Arrived at <i>Rochester</i> November 12th.		
Detained at Rochester for coal.....	5	15
Detained at lock 66 by boats aground	2	..
Detained at Macedon, waiting to lock.....	..	40
Detained at Palmyra.....	4	10
Detained at Port Gibson for wood and water.....	1	..
Detained at Newark locks, waiting to lock.....	1	30
Detained at Clyde, waiting to lock	3	40

	DETENTIONS.	
	Hours.	Min.
Detained at Lock Berlin locks, waiting to lock.....	3	30
Detained at Port Byron, on dock.....	5	15
Arrived at <i>Syracuse</i> November 15th.		
Detained at Syracuse for coal.....	6	45
Detained at Lodi by crowd of boats	2	30
Detained at Manlius, aground; 5 ft. 9 in. water	2	40
Detained above Bolivar, aground; 5 ft. 8 in. water ...	2	20
Detained at Canastota, repairing pump.....	2	20
Arrived at <i>Utica</i> November 16th.		
Detained at Utica by crowd of boats.....	1	..
Detained at Ferguson's by a tug with 4 boats in tow..	1	..
Detained at Little Falls, waiting for lock.....	1	45
Detained at Spraker's to repair steam pipe.....	8	30
Detained at Auriesville for wood and water.. ..	..	40
Arrived at <i>Schenectady</i> November 18th.		
Detained at Schenectady.....	2	35
Detained at locks 18 and 19, waiting to lock.....	1	30
Detained at 16 locks, waiting to lock	1	20
Arrived at <i>West Troy</i> at 9.45 A. M., November 19th.		
Total detentions claimed.....	83	45

Deductions.

	Days.	Hours.	Min.
Total time from Buffalo.....	8	22	15
	Days.	Hours.	Min.
Detentions claimed.....	3	13	45
Add for lockage .....	..	10	..
	3	23	45

Running time 4 22 30
or 118½ hours; distance, 345 miles.

Average speed..... 2.91 miles per hour.
Average speed, including lockages..... 2.69 miles per hour.
Average speed, including all detentions 1.63 miles per hour.

SUMMARY OF THE "PORT BYRON'S" TRIPS.

NUMBER OF TRIPS.	Cargoes, tons.	TIMES.									Average speed, miles per hour.
		Total.			Detentions.			Running.			
		D.	H.	M.	D.	H.	M.	D.	H.	M.	
First trip west.....	100.	11	15	50	6	2	55	5	12	55	2.59
First trip east	200.2	24	15	20	17	15	15	7	..	5	2.05
Second trip west.....	196.	10	12	30	4	20	15	5	16	15	2.53
Second trip east	200.2	9	3	40	3	14	15	5	13	25	2.58
Third trip west.....	117.	5	10	30	1	6	30	4	4	..	3.45
Third trip east.....	198.4	8	22	15	3	23	45	4	22	30	2.91
Means .....	.....	11	17	20.5-6	6	5	49.1-6	5	11	31½	2.685

SPECIAL PERFORMANCES.

The following are extracted from Captain Emerson's statement. On the second trip east, the "Port Byron" ran from Buffalo to Lockport, 31 miles, in 7 hours and 30 minutes, and from Port Byron to Montezuma, 5 miles, in one hour. On the same trip the run between Troy and Albany, on the river, was made in 1 hour and 10 minutes. On the final trip east, the "Port Byron" passed through the 16 locks at Cohoes, in 2 hours and 40 minutes; ran from Troy to Albany, on the river, in 50 minutes; and made the run from the weigh-lock in West Troy, to pier 9 East river, New York, in 30 hours and 30 minutes.

The indorsements upon the clearance for the third trip west (the only complete copy furnished) show that the average speeds for that trip, between the prominent points on the line of the canal, exclusive of all detentions claimed and of 8 minutes for each lock passed, were :

	Distance. Miles.	Running time. Hours. Min.		Aver. speed. Miles per hour.
West Troy to Schenectady	23	7	5	3.25
Schenectady to Utica	80	26	6	3.07
Utica to Syracuse	56	16	3	3.49
Syracuse to Rochester	93	25	32	3.64
Rochester to Buffalo	93	26	2	3.57

The ability of the "Port Byron" to make an average speed of 3 miles per hour for the entire run from West Troy to Buffalo, carrying 117 tons of cargo, is thus demonstrated. It should be remarked, however, that her wheel, with the immersion due to a cargo of 117 tons, is much more efficient than it is with the excessive immersion due to a cargo of 200 tons, or with its axis only 8 inches above water. In the former case, the dip of the center of the bucket is only about 2 feet four inches; while in the latter it is 4 feet 4 inches.

POWER AND SLIP.

On the 18th of November I joined the "Port Byron" at lock 25, six and a half miles west of Schenectady, and accompanied her as far as the latter point. We left lock 25 at 2.45 P. M. and arrived at the collector's office in Schenectady at 5.15 P. M.; time $2\frac{1}{2}$ hours; distance $6\frac{1}{2}$ miles; lockages 2; running time 2 hours 14 minutes; average speed 2.9 miles per hour. The run from lock 23 to Schenectady, $2\frac{1}{2}$ miles, was made in 45 minutes, or at the rate of 3.67 miles per hour. Several boats were passed and considerable delay was experienced, of which no note was taken. Between locks 23 and 25 the

water was at least a foot low, so that the boat was almost constantly rubbing the bottom.

The average steam pressure and revolutions, during the time I was on board, were estimated at 80 pounds, and 25 per minute, respectively; indicating the expenditure of a power of 48 horses. At one time, when just below lock 23, 100 pounds and 30 revolutions were observed. Taking the whole run of $6\frac{1}{2}$ miles, the slip of the wheel averaged about $67\frac{1}{2}$ per cent. Taking the run from lock 23 to Schenectady, the slip was about 60 per cent.

COAL CONSUMPTION.

Captain Emerson's statement shows that, on the first trip east, the coal consumption was at the rate of $1\frac{1}{2}$ tons of anthracite coal in 24 hours; but whether this was the consumption for each day of *running* time, or whether it was for each 24 hours of the entire time consumed in making the trip, is not stated.

On the second trip east, the coal consumption is put at 2 tons of bituminous coal in 24 hours.

On the third trip west, 8 tons of bituminous coal and 2 tons of anthracite coal were burned, making 10 tons for the entire trip.

On the final trip east, the quantity of coal burned was "the same as on preceding trips," or at the rate of 2 tons of bituminous or $1\frac{1}{2}$ tons of anthracite, in 24 hours, "while running." If we take the loss of the several trips, and deduct from the total time of each an amount of time which may fairly represent the extent to which the coal consumption was interrupted by the several detentions which are noted, and allow $1\frac{1}{2}$ tons per day for the remaining time—estimated as "running time"—the coal consumption, for the several trips, will stand thus:

	Estimated equivalent running time.	Coal.
First trip west	8 days.	12 tons.
First trip east	$9\frac{3}{8}$ days.	$14\frac{1}{2}$ tons.
Second trip west	$7\frac{1}{2}$ days.	$11\frac{1}{4}$ tons.
Second trip east	7 days.	$10\frac{1}{2}$ tons.
Third trip west	$5\frac{1}{2}$ days.	$8\frac{1}{4}$ tons.
Third trip east	$6\frac{3}{4}$ days.	$10\frac{1}{8}$ tons.
Totals	$44\frac{5}{8}$ days.	$66\frac{5}{8}$ tons.
Averages	7 days $9\frac{3}{8}$ hours.	$11\frac{5}{8}$ tons.

According to this estimate, which is believed to be very liberal, the coal consumption, per boat mile, on the canal, was 64.4 pounds of anthracite, or its equivalent of bituminous.

GENERAL DEDUCTIONS.

Distance steamed on the canal, miles.....	2,070
Tons moved over the canal, including boat.....	1,422.4
Tons moved over the canal, cargo.....	941.8
Coal consumed, tons (approximate)	66.62
Average power expended, horses (about)	45
Average duration of single trip, hours	281.35
Average running time of single trip, hours.....	131.52
Average speed, exclusive of all detentions, miles	2.68
Ton miles, including boat	352,555.5
Ton miles, cargo.....	324,921
Coal consumption per boat mile, pounds	64.4
Coal consumption per ton mile, including boat.....	0.378
Coal consumption per ton mile, cargo.....	0.410
Cost of coal per boat mile (\$5.50 per ton), cents.....	17.71
Cost of coal per ton mile, including boat	0.104
Cost of coal per ton mile, cargo.....	0.113

These deductions, so far as relates to coal and its cost, are made upon an assumed exclusive use of anthracite. In fact, however, large quantities of bituminous coal were used at a larger rate of consumption and at a higher rate per ton. The actual cost as well as consumption of coal was, therefore, undoubtedly greater than is indicated by the above figures.

In so far as provision is made for the passage of a part of the displaced water through the trunk, already described, the "Port Byron" may be taken as representative of a large number of devices which have been brought to my attention during the last two years. The chief claim for this class of devices is, that the passage of a portion of the water astern, *through* the boat, will prevent the formation of the wave or swell which it is assumed is produced when the water is compelled to find its way astern along the sides and bottom of the boat.

The actual effects of any such modification of the hull are :

1st. A diminished midship section and displacement, and an increased weight of boat ; and hence, a diminished carrying capacity.

2d. An increase in the surface of the boat, and hence an increased "skin-friction ;" and the necessity of an increased power per ton of carrying capacity.

Now, so far as the water, in its movement to fill the void created

by the advancing boat, is influenced by gravity alone, the facility with which the interchange of position between the water and the boat is effected will depend entirely upon the ratio of the sections of the latter and of the prism of the canal; and there will be no difference, in the final result, whether the water passes through the boat, or whether the boat passes through the water, except that, in the former case, the water will move less freely than it will in the latter, on account of the greater wetted perimeter and friction of the channel by which such movement is effected. In a word, the adoption of such a device would be equivalent to the adoption of a smaller and more expensive boat than those now in use, and requiring more power for its propulsion.

In the case of the "Port Byron," the effect of the trunk upon the carrying capacity amounts to about 6 tons, causing her to draw nearly two inches more water than she would without the trunk. Had her draft been two inches less, while making her trips east, much of her detention from grounding would have been avoided, and better running time would have been made. The increase in "skin-friction," due to this trunk, is about seventeen per cent.

If the flow of water through the trunk in question is to be accelerated to any considerable extent by the propelling instrument, at the expense of the power of the machinery, the merits of the device become still more questionable, as will appear from the following considerations: The area of a section of the trunk is 2 square feet, and the area of the midship section of the boat, when drawing 6 feet of water, 104 square feet. For our present purpose, we may consider the former as two per cent of the latter. While the loaded boat is advancing a distance equal to its own length, then, a volume of water equal to two per cent of the displacement may be considered as passing through the trunk (in fact the trunk passes through the water). If, now, the boat be moving at a speed of 3 miles per hour, and ten per cent of the water pass through the trunk, the velocity of the current will be 15 miles per hour, and the equivalent head due to this velocity, together with the resulting friction, will be about $9\frac{1}{2}$ feet. In one minute, then, $15 \times 88 \times 2 = 2,640$ cubic feet of water must pass through the trunk at the expense of sufficient power to raise it to a height of $9\frac{1}{2}$ feet. This power will be 47.5 horses, or more than is found necessary to propel the boat, under any circumstances, at the speed named. If 6 per cent of the water be passed through the trunk, or three times as much as would naturally pass, the velocity of the current will be

9 miles per hour, and the frictional head 3.3 feet; while the expenditure of power, on this account, will be 17.4 horses. My observations and estimates satisfy me that this amount of power could not, at any time, have been expended for the purpose indicated, and, hence, that the quantity of water drawn through the trunk could not have amounted to even 6 per cent of the displacement. It is therefore idle to undertake to obviate, by such means, an assumed difficulty which experience and careful observation have shown to have no existence as a matter of fact, or that, if it does exist, its effect is so trifling as not to attract or merit special notice or attention.

The precise effect produced upon the water at the sides of the canal, by the passage of boats, is a depression extending from bow to stern, on each side of the boat, while the normal elevation of the water, both ahead and astern, is not sensibly changed. This depression, which is segmental in profile, advances with the boat. Its greatest depth is at a point nearly opposite to the center of the boat, and varies, with the speed, from an inappreciably small amount, at very low speeds, to a maximum of about nine inches at the highest speeds thus far attained.

The feathering paddle-wheel of the "Port Byron" also requires special attention.

Let it be assumed that it is capable of giving the boat, with 200 tons of cargo, a maximum speed of 3.8 miles per hour through the water, and that the slip of the centers of the paddles, at such speed, is 33 per cent. The wheel will then make 16 revolutions per minute; and the velocity of each paddle, as it reaches its lowest point and greatest efficiency, will be 8.3 feet per second. At the same time the speed of the boat, in the opposite direction, will be 5.57 feet per second. The velocity of the paddle through the water will therefore be $8.3 - 5.57 = 2.73$ feet per second, which represents its slip. Now, at this instant, the two adjacent buckets, which are 45° distant from the former, will be moving astern at the rate of $8.3 \times \cos. 45^\circ = 5.87$ feet per second. Deducting from this the velocity of the boat in the opposite direction, we find that the velocities of each of the two paddles through the water is $5.87 - 5.57 = 0.3$ of a foot per second. It appears, then, that the forward paddle has just begun to act usefully, and that the after one is just ceasing to act in that manner. The efficient action of each paddle is therefore limited to an arc of about 90° .

From the instant that each paddle enters the water until it reaches a point about 45° below the horizontal, its motion, astern, is less than

the forward motion of the boat; and hence it is backing water, or retarding the progress of the boat. The same is true of each paddle from the instant it ceases to act efficiently until it leaves the water. Now, each paddle enters the water while its arm is still above the horizontal line passing through the axis of the shaft, and does not leave it until its arm has passed above this line on the after side. Tracing, then, the action of a paddle, from the instant when it enters until it leaves the water, it will be seen that while descending through an arc of about 45° it is backing water or impeding the progress of the boat; that when it passes the point where it ceases to act prejudicially, it begins to act effectively, which action is constantly increased until its lowest point is reached, where the effect is maximum; that beyond this last point the useful effect gradually diminishes, and finally ceases, at a distance of about 45° from the lowest point; and that beyond this point it again becomes an impediment, and continues to be such until it finally leaves the water.

It appears, therefore, that each paddle is effective only during one-half of its immersion; and that during the other half it is not only inefficient but becomes a serious impediment to the forward movement of the boat.

I have thus pointed out, in a general way, the character of the defects of this wheel when deeply immersed, as in the case of the "Port Byron." A careful analysis of its action when the boat is loaded to 6 feet draft, shows that, taking the effect of a paddle at its lowest point as unity, the aggregate useful effect of all the paddles is 1.123, or about $1\frac{1}{8}$ paddles. Had the retarding effect, due to back water, been also estimated and deducted, the result would have shown a resultant useful effect for the entire wheel of less than one paddle.

We thus have an explanation of the fact that, on the 18th of November, the mean slip of this wheel was $67\frac{1}{2}$ per cent. At 33 per cent slip the effective paddle surface is too small to accomplish the work required of it. In order, therefore, to develop a reaction equal to the resistance of the boat, the revolutions of the wheel and its slip must be increased to such an extent as to bring the paddles into earlier effective action, and at the same time to diminish the resistance due to back water.

With an immersion such that, with a reasonable amount of slip, the paddles would act effectively at the instant of entering the water, this wheel would doubtless give good results. During the three western trips, this condition was of course most nearly satisfied; and it is to this fact, in part at least, that the average speed in that direction,

against the current, exceeded by over a third of a mile an hour the average speed east.

VII. *The "Excelsior."*

This was an iron steamer, built at Green Point, N. Y., of full size, and was represented by W. H. Mallory, Esq., of Bridgeport, Conn. Her launching weight was said to have been less than 30 tons.

The peculiarity of the "Excelsior" consisted in her propelling instrument, which was the Fowler wheel. This wheel, like those of the "Fountain City," is a paddle-wheel, revolving about a vertical axis. It has four blades, each two feet long by one foot wide, giving an aggregate surface of 8 square feet. Its axis was supported at the bottom by a plate or shoe extending aft from the keel and supported at its other extremity by an iron rod suspended from the hull above. The pitch of the blades of this wheel is adjustable by means of an eccentric upon the shaft, from the strap of which rods lead to and connect with arms upon the upper extremities of their axes. The adjustment is effected by the steersman, who is thus enabled to direct the action of the wheel in such a manner as to cause it to drive the boat ahead, back it or turn it around within its own length without stopping or reversing the engine. This wheel, therefore, serves the double purpose of propeller and rudder, with the additional advantage that all the functions of these two instruments are performed simultaneously, while the direction of the motion of the wheel itself remains unchanged.

The engine of the "Excelsior" was a single cylinder, twelve inches in diameter by twenty inches stroke of piston, was provided with an independent adjustable cut-off valve upon the back of the main valve, and was non-condensing. The engine was connected directly with a crank upon the upper extremity of the wheel-shaft.

The boiler was horizontal, return-tubular, five feet in diameter and ten feet long; it had one flue twelve inches in diameter, two flues eight inches in diameter, and forty-four three-inch return tubes six feet in length. The grate surface was sixteen square feet, and the heating surface about 280 square feet. The exhaust could be turned into the smoke-stack, or outside, as desired. It was originally intended that the end of the boat containing the machinery should be the bow, but upon trial it was found not to work satisfactorily in that direction. In the other direction, however, she was found to perform to the entire satisfaction of her owners, except that the stern, which was built very full, did not serve the purpose of a bow quite as well as could have been desired.

This steamer entered the canal on the 4th of September last with a cargo of 100 tons of coal; but, in passing through the sixteen locks at Cohoes, a hole was stove in each bow, which, but for a water-tight bulk-head, would have caused her to sink. She, however, proceeded as far as Crescent, where she went upon the dock for repairs. I joined the steamer, at this point, on the 5th. It had already been decided, on account of the obvious frailty of the boat, and her evident inability to withstand the shocks which she would encounter in the canal, to return to New York and transfer the machinery to a wooden hull.

Major Mallory, however, for the purpose of exhibiting the capacity of his machinery, consented to make a run as far as lock 19, distant six miles from Crescent. Accordingly, on the morning of the 6th, the "Excelsior" left the dry-dock at 8 o'clock and ten minutes, and proceeded west. At 8.38 a line was caught in the wheel, which caused a detention of an hour and thirty-five minutes; at 10.50 proceeded and reached lock 19 at 12 o'clock noon. Running time, one hour and 46 minutes; average speed, against the current, 3.41 miles per hour. At 1.15 P. M. started on the return trip, and at 2.03 P. M., in endeavoring to pass a loaded boat at a point where the canal was obstructed by other boats, ran upon rocks upon the berme side and stove a hole in the port bilge. Upon backing off, a serious list to port indicated that the steamer was sinking. She was immediately backed into wide water and grounded on the berme side of the canal, where she soon filled with water. While running west the speed was at times as high as 3.8 miles per hour; running east with the current, four miles was exceeded. The coal expended during the six hours was 546 pounds; distance steamed, nine miles; average coal consumption per boat mile, 60.7 pounds. The engine was idle, however, over a third of the time.

The steam pressure ranged from 80 to 95 pounds, and the revolutions from 80 to 100 per minute. Average steam, 89 pounds; average revolutions, 94 per minute.

The steam having been throttled during the entire run, and the effect of the throttling being very uncertain, it is impossible to determine what power was expended. Judging from the coal consumption, I think it did not exceed 35 to 40 horses.

As to the efficiency of the wheel, as compared with other propelling instruments, the test was not sufficiently prolonged to warrant an expression of opinion.

VIII. *The "Eureka."*

This boat, which was built and is owned by Hiram Niles, Esq., of Buffalo, is of iron, full size, and weighs, with her machinery, 79½ tons. She is unusually sharp, forward, below load water-line, and carries her machinery, consisting of a Perry and Lay compound engine and two screw propellers, forward.

Her cylinders are 8 and 16 inches in diameter, and the stroke of the pistons is 12 inches. Her boiler has 10½ square feet of grate, and consumes, as the captain informed me, two tons of coal in 24 hours.

The screws are 42 inches in diameter, and have a pitch of 4 feet 8 inches; these are so disposed that their axes are parallel with those lines of the bow which lie in the same horizontal plane, and are driven by a level wheel upon the outboard end of the engine shaft.

On the 17th of September I joined the "Eureka," at lock 5, while she was bound west with a cargo of 150 tons. She ran from this point to the head of the 16 locks, making the passage of 13 locks in three hours and five minutes. The time occupied in locking ranged from 6 minutes and 20 seconds to 9 minutes and 55 seconds. She did not enter the locks readily; this was partly on account of her extreme width, and partly, I think, on account of the location and arrangement of the screws.

The steamer left lock 18. at 2.12 P. M., and at 2.25 became disabled by the breakage of one of the bevel wheels. During the run of 13 minutes, while the engine was making 116 revolutions, the speed was observed to be at the rate of 2.7 miles per hour. The "slip" was, therefore," 56 per cent.

No clearances or statements of detentions have been furnished by Mr. Niles, who, it is understood, on account of the unsatisfactory character of the "Eureka's" machinery, withdrew her from competition.

IX. *The "George A. Feeter."*

This is an ordinary "bull-head" boat, transformed by Mr. Louis Stagg, of Springfield, Ohio, in accordance with a peculiar idea of his as to the best and most effective means by which the formation of the wave or swell may be prevented.

Mr. Stagg says: "The device or invention consists in taking the water in on either side of the boat and discharging it at the stern, through channelways placed in the bottom of the boat, starting from a point one-third the distance of the full length of the same from the stern." This plan, says Mr. S., "is based upon a hydrostatic law that

water drawn diagonally from the sides of the boat, revolving in opposite directions, will pass out in straight lines, without lifting or agitating the surface of the water, absolutely preventing the wash of the banks or injury to the canal or its structures."

The channel-ways are each 52 inches in diameter, and meet at a point 7 feet from the stern; from this point a single trunk, 7 feet wide and 52 inches high, extends directly to the stern. The combination, therefore, in plan resembles the letter Y.

The screws are 4 feet in diameter, are placed 2 feet within the hull, have a feed space extending 9 feet forward, and revolve in opposite directions. The machinery consists in a pair of Gothic inclined engines, with cylinders 10×12 , and rated at 60 horse power.

The boiler is horizontal return tubular; has 16 square feet of grate surface, six 6-inch flues and seventy-two 2-inch return tubes.

The "Feeter" left Buffalo, on her first and only trip, on the 16th of November, with a cargo of 6,000 bushels of corn, weighing 168 tons, and drawing 6 feet of water.

No statement of detentions has been furnished, nor did the several collectors note the hours at which the boat passed their offices; but the *dates* are as follows: Buffalo, November 16th; Albion, 17th; Rochester, 17th; Palmyra, 19th; Montezuma, 20th; Syracuse, 21st; Utica, 24th; Schenectady, 25th; West Troy, 26th. The time consumed in making the trip, therefore, appears to have been about 10 days.

The coal consumption is put by Mr. Stagg at $1\frac{1}{2}$ tons in 24 hours. He accompanied the boat as far as Rochester, and states that the speed between Buffalo and Rochester averaged 3 miles per hour. The probable correctness of this statement, as to speed, is indicated by the indorsements on the clearance.

This boat cannot carry 200 tons, and, therefore, cannot meet all the requirements of the law. Mr. Stagg claims that she can carry 150 tons and tow four loaded boats. Her ability to do this, however, remains to be demonstrated.

X. *The "Central City."*

This is a new side-wheel boat, built expressly for steam propulsion by Mr. T. D. Davis of Syracuse. She is quite sharp forward, is 98 feet long and of the usual width.

The peculiar feature of the "Central City," so far as her machinery is concerned, consists in the provision which is made for adjusting the immersion of the paddle wheels to the draft of water, so as at all

times to insure the maximum efficiency of the paddles. The wheels, boiler and engine rest upon a frame which is supported by four vertical screws, by which the entire machinery and wheels may be raised or depressed at will. When the boat is loaded, all of the machinery will be even with or above the deck, leaving the entire space underneath available for the stowage of cargo. The wheels are placed in recesses built in the sides, at the stern of the boat, are 12 feet in outside diameter and have each 12 paddles $26\frac{1}{2}$ inches long by 22 inches deep.

The boiler is 4 feet in diameter, has 14 square feet of grate and about 230 square feet of heating surface.

The engine is single, non-condensing, with a cylinder 10 inches in diameter, 17 inches stroke of piston and is geared to the paddle-shaft in the ratio of 6 to 1.

This boat was completed late in November last, and was able to make only a single trip from Syracuse to Albany, where she now lies. While making this trip she forced her way through the ice from Schenectady to Troy, after horse-boats had ceased running.

I was not able to join this boat on her trip, and, therefore, know nothing, personally, of her performance. Mr. Davis, however, expresses himself as quite satisfied that the boat will prove to be a success.

XI. *The "Montana."*

This is an ordinary "lake boat" remodeled to receive a feathering paddle-wheel in the center of the stern. For this purpose a recess was cut about $6\frac{1}{2}$ feet wide, having its forward bulk-head vertical and distant about 10 feet from the stern. The paddle-wheel is 8 feet in diameter, to the axes of the paddles, and has eight curved paddles of boiler iron, each of which is 6 feet long and 21 inches wide.

The engines are two in number, direct-acting and non-condensing; the cylinders are 9 inches in diameter, and the stroke of the pistons is 18 inches.

The boiler is of the horizontal locomotive type, 4 feet in diameter and 10 feet long; it has 13 square feet of grate surface, and ninety $2\frac{1}{4}$ inch fire tubes, 4 feet 3 inches long, the latter, together with the fire box, making about 288 square feet of heating surface.

The "Montana" has made one or two single trips, but, I believe, has not performed to the satisfaction of those interested in her. The plan resembles that involved in the "Port Byron," except that the trunk is wanting, and that the wheel is smaller and the buckets longer.

I saw this boat on the canal while coming east on board the "Baxter" on the morning of the 14th of November. It was quite dark at the time, and I was unable to judge as to her behavior. I was unable to join her at any time, as no information was furnished as to her movements.

Neither clearances nor statement of detentions have been furnished by the captain or owners of the "Montana."

The foregoing comprises all the boats to which my attention has been called during the last two seasons of navigation. Others have, I believe, been upon the canal, but whether or not they were considered as competing for the reward offered by the State, I am not informed. The list certainly embraces all that can by any possibility claim to have made the preliminary trips required by resolution of the Commission, or to have carried the cargoes and made the speed required by the law.

HORSE-BOAT "TIME."

In order to judge correctly as to the relative capacities and economy of steamers, as compared with horse-boats, it is of course necessary to know the average time of the latter between Buffalo and Troy. For the purpose of ascertaining this time, I caused an examination to be made of the clearances of 72 boats arriving, consecutively, at West Troy from Buffalo. The results of this examination are as follows: Average time between Buffalo and West Troy, 10 days 2 hours and 46 minutes; average cargo, 227 tons; average speed, 1.42 miles per hour. This examination was commenced on the 16th of October, and in only two or three instances was mention made of delay due to sickness of horses. It is assumed, therefore, that the results obtained fairly represent the average performance of the horse-boat between Buffalo and Troy.

STEAM TOWING.

The opinion is expressed by many persons interested in canal navigation that the true solution of the problem of "steam on the canals" is to be found in the employment of steamers which shall simply tow trains of boats, carrying no cargo themselves, or shall carry moderate cargoes themselves and shall tow one, two or three loaded boats besides. The arguments advanced in support of this opinion, and which seem plausible enough until critically examined, are that only one engine and crew may thus be made to do the work of several engines and crews, and that the space occupied by the single engine,

even though it be of greater power, will be much less than the aggregate space occupied by the machinery when applied to each boat, and, therefore, that the average paying cargo will be greater. The economy of steam towing on the canal will depend mainly upon the relative speeds of the tow and of the single steamer, and upon the costs at which these speeds are attained. If it be possible to tow a train of boats from Buffalo to Troy in the same time that the single steamer requires for the same trip, and with the same expenditure of power per ton, then there can be no further question as to the superior economy of that mode of transportation. But can this speed be attained?

The effective surface of the propelling instrument which may be employed upon the canal is limited by the depth of the canal and by the width of the locks. Hence no larger propelling surface can be employed in connection with the towing steamer than can be used in each steamer that does not tow. Now, the "slip" of any propelling instrument, and the loss of power due to it, increase rapidly with the work it has to do. It follows, then, since the work of the towing steamer must necessarily be much greater than that of the single steamer at the same speed, that a much larger per centage of the power of the former will be uselessly expended in "slip" than will be thus expended in the latter, and hence that the towing steamer cannot use its power as effectively as the steamer which does not tow. If the power cannot be used as effectively in the one case as in the other, then, with the same proportionate expenditure of power, the towing steamer cannot attain the same speed that can be maintained by the steamer without a tow.

This is a serious objection to towing, but it is not the only one. The canal steamer passes through the canal with a necessary average detention of say six minutes at each lock, or seven hours between Buffalo and Troy. The towing steamer passes a lock as quickly as the former; but after it has passed, it must wait for the first and succeeding boats of the tow to be locked through. Each additional single lockage will require nearly or quite double the time required for the first, on account of the greater difficulty in the management of the towed boats, and of the necessity of waiting for the locks to be "shifted," or for a boat to be locked in the opposite direction. The time of *three* single lockages is therefore required for the passage of the steamer with one boat in tow; but the boats already locked through must still await the slow process of locking the balance of the tow. If there be two boats towed, the detention will be increased *five* times;

if three, *seven* times; and if four, *nine* times. Thus the detention of a tow of four boats at each lock would be 54 minutes. This, between Buffalo and Troy would make an aggregate detention of 63 hours, or $2\frac{1}{2}$ days, against the detention of 7 hours experienced by the non-towing steamer. Thus it appears that the loss of time at the locks alone, by the tow, amounts to nearly or quite half the length of time required for the entire trip of the single steamer. If to this delay be added the effect of the reduced speed while running, and the delays from low water caused by waste in locking, the economy of towing becomes still more questionable.

That the foregoing is not mere speculation, we have abundant evidence in the performances of the "Newman," and of the several tugs which were put upon the canal, temporarily, during the prevalence of the horse disease in October and November last. The "Newman" made her three trips east in an average of six days, thirteen hours and fifty minutes, including all detentions, when running alone; but with two boats in tow her time was increased to twelve days and six hours, including all detentions; which may also be taken as a fair average for the time of a tug with four boats in tow.

Fortunately, the data in our possession, in regard to the "Newman's" performances, is so complete that we are able to make very reliable estimates of the costs of freight movement in the two cases.

In making these estimates, the cost of the steamer will be taken at \$7,000, and the cost of the horse-boat at \$4,000. Interest will be allowed at the rate of seven per cent upon the investment; also ten per cent per annum for depreciation or maintenance. The season of navigation will be taken at the average of 230 days; against which working time the interest and maintenance will be charged. The time of the steamer, between Buffalo and Albany, when running alone, with a cargo of 200 tons, will be taken at six days, to which three days will be added for detention in port. The time of the steamer with two boats in tow, carrying in the aggregate 660 tons, will be taken at twelve days, with three days added for detention in port. Finally, we shall use the recorded coal consumption in each case, and estimate the same at \$5.50 per ton. The estimates will then stand as follows:

Estimated cost of transporting 200 tons from Buffalo to Troy, by the steamer "William Newman."

Interest, 9 days at \$2.13	\$19 17
Maintenance, 9 days at \$3.04	27 36
Coal, $\frac{65.2 \times 345}{2000} \times \5.50	61 86
Engineers, 9 days at \$3	27 00
Captain, 9 days at \$2	18 00
Two men, 9 days at \$1 each	18 00
Cook, 9 days at 40 cents	3 60
Board 9 days of 6 persons at 50 cents	27 00
Oil, tallow and waste, say	8 01
Total	\$210 00

Cost per ton moved 345 miles	\$1.05
Cost per ton moved 1 mile	$3\frac{1}{10}$ mills.
Cost per bushel of wheat 345 miles	$3\frac{1}{10}$ cents.

Estimated cost of transporting 660 tons from Buffalo to Troy by the steamer "William Newman," with two boats in tow.

1. Cost of steamer's trip:

Interest, 15 days at \$2.13	\$31 95
Maintenance, 15 days at \$3.04	45 60
Coal, $\frac{130.4 \times 345}{2000} \times \5.50	123 72
Engineers, 15 days at \$3	45 00
Captain, 15 days at \$2	30 00
Two men, 15 days at \$1 each	30 00
Cook, 15 days at 40 cents	6 00
Board 15 days of 6 persons at 50 cents	45 00
Oil, tallow and waste, say	16 00
Total	\$373 27

2. Cost of each horse-boat:

Interest, 15 days at \$1.22	\$18 30
Maintenance, 15 days at \$1.74	26 10
Captain, 15 days at \$2	30 00
Two men, 15 days at \$1 each	30 00
Cook, 15 days at 40 cents	6 00
Board 15 days of 4 persons at 50 cents	30 00
Total for one boat	\$140 40
Total for two boats	\$280 80

The total cost of the trip is therefore as follows:

Cost of steamer's trip.....	\$373 27
Cost of two horse-boats	280 80

Total.....	<u>\$654 07</u>
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Cost per ton moved 345 miles	99 $\frac{1}{10}$ cents.
Cost per ton moved 1 mile.....	2 $\frac{87}{100}$ mills.
Cost per bushel of wheat 345 miles.....	2 $\frac{87}{100}$ cents.

Estimated cost of transporting 920 tons from Buffalo to Troy in 4 boats, towed by a steam tug costing \$14,000.

Cost of tug and power:

Interest, 15 days at \$4.26	\$63 90
Maintenance, 15 days at \$6.09	91 35
Coal, 36 tons at \$5.50	198 00
Captain, 15 days at \$3.....	45 00
Engineers, 15 days at \$4	60 00
Three men, 15 days at \$1 each.....	45 00
Cook, 15 days at 75 cents	11 25
Board 15 days of 7 persons at 50 cents.....	52 50
Oil, tallow and waste, say	20 00
	<u>\$587 00</u>
Add four boats at \$140.40 each	561 60

Total cost of trip	<u>\$1,148 60</u>
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Cost per ton moved 345 miles	\$1.25 nearly.
Cost per ton moved 1 mile.....	3 $\frac{62}{100}$ mills.
Cost per bushel of wheat 345 miles	3 $\frac{1}{4}$ cents.

Collecting these results per ton mile, we have:

1. For the "Newman"	3.04 mills.	100
2. For the "Newman" towing two boats.....	2.87 mills.	94
3. For the tug towing four boats.....	3.62 mills.	119

The cost of equipment per ton transported in each of three cases is as follows:

1. For the "Newman"	\$35 00
2. For the "Newman" and two boats	22 73
3. For the tug and four boats.....	32 61

The cost of equipment per ton transported in each of the first two cases, reduced to what it would be for the same movement that was effected in the third case, in the same time, give the following results:

1. For the "Newman".....	\$21 00	100
2. For the "Newman," towing two boats.....	22 83	109
3. For the tug towing four boats.....	32 61	155

These results, based as they all are upon the same movement and time, show the relative costs of equipment for the same freight movement by the three modes considered. Taking the "Newman's" performance when running alone as the standard of comparison, it appears that in the case of the "Newman" towing two boats, the cost of movement is six per cent less; but that the outlay required for equipment is nine per cent greater. It further appears that, in the case of the tug towing four boats, the cost of movement and the cost of equipment are nineteen and fifty-five per cent greater respectively. Boats towed by steam on the canal are liable to greater injury from collisions and other causes than boats towed by horses, or boats propelled by their own machinery; the endurance of the steam-towed boat will, therefore, be less, while the cost of its maintenance will be correspondingly greater than that of the present boats.

In view of all the facts, then, it appears that, so far as the movement on the canal alone is concerned, the cost is very nearly the same, whether it be effected by placing steam in each boat, or by placing it in every third boat; and that either of these methods will be found far more economical than the use of tugs. When, however, the movement is continued down the river to New York, the results will be different. In that case, the single steamer, upon arriving at Troy, can enter the river and proceed directly to its destination, with the expenditure of thirty hours' additional time and not more than $2\frac{1}{2}$ tons of coal, amounting together to \$39.10, and making the total expense of the trip from Buffalo to New York \$249.10, or at the rate of $2\frac{52}{100}$ mills per ton per mile for 495 miles. Upon the arrival of the same steamer at Troy, with two boats in tow, the former would proceed to New York as before, and with the same expense, while the latter will require at least two days' extra time and an additional expense of \$30 each to reach their destination. The total expense of the trip of the three boats, from Buffalo to New York, with an aggregate cargo of 660 tons, will therefore be:

For steamer, Buffalo to Troy	\$373 27
For steamer, Troy to New York	39 10
For two boats, Buffalo to Troy	280 80
For two boats, Troy to New York.....	97 44
Total.....	<u>\$790 61</u>

or at the rate of $2\frac{42}{100}$ mills per ton mile; showing a difference of only 3.9 per cent in favor of the latter mode of transportation. Upon the arrival of the tug, with its four boats, at Troy, the former would be at liberty to make up a tow for the return trip, and its expense would be the same as already estimated; the latter would proceed to New York with the same delay, and at the same cost, per boat, as estimated in the last preceding case. The total cost of the movement, of 920 tons, from Buffalo to New York, will therefore stand thus :

Expense of tug, from Buffalo to Troy.....	\$587 00
Expense of 4 boats from Buffalo to Troy.....	561 60
Expense of 4 boats from Troy to New York.....	194 88
Total	<u>\$1,343 48</u>

or at the rate of $2\frac{75}{100}$ mills per ton mile; which is 17.3 per cent greater than the cost by the first mode.

SUMMARY OF RESULTS AND DEDUCTIONS.

MODE OF TRANSPORTATION.	Tons per trip.	Cost equipment, per ct.	BUFFALO TO TROY, 845 MILES.				BUFFALO TO NEW YORK, 495 MILES.			
			Cost of movement.				Cost of movement.			
			Per ton.	Per ton per mile.	Per bush. wheat.	Per cent.	Per ton.	Per ton per mile.	Per bush. wheat.	Per cent.
By steamer alone	200	100	\$1 05	mills. 8.04	cents. 3.15	100	\$1 24½	mills. 2.52	cents. 3.736	100
By steamer, towing two boats on canal	660	109	99.1	2.87	2.97	94	1 19.8-10	2.42	3.594	96
By tug, towing four boats on canal.	920	155	1 25	3.62	3½	119	1 46	2.95	4.883	117

The foregoing estimates and comparisons are based upon authentic information as to the actual performances of the "Newman;" but, in the case of the tug, the time occupied in making the trip is not so certainly known. General report, however, together with my own observations of their movements on the canal, as compared with those of other boats, seem to justify the assumption that the time adopted in the estimate is nearly correct. But if it shall appear that a fair average of the time consumed between Buffalo and Troy was actually less than twelve days, the results which have been obtained may be very readily corrected. Let it be assumed, for example, that this time was in fact ten days, making, with the three days allowed for detention at destination, thirteen days for the trip from Buffalo to Troy.

We have then each item of expense reduced two-fifteenths, except the coal consumption, which will be reduced one-sixth. The total expense of the trip, thus modified, will therefore be:

Cost of tug 13 days.....	\$502 13
Cost of 4 boats 13 days	486 72
	<hr/>
Total	\$988 85
Cost per ton 345 miles	\$1.07½
Cost per ton 1 mile	$\frac{3.116}{1000}$ mills.
Cost per bushel of wheat, Buffalo to Troy....	$\frac{3.225}{1000}$ cents.
If we add the cost of towing the four boats to New York, as in the former estimate, the total cost of the movement of 920 tons from Buffalo to New York is	
	\$1,183 73
Cost per ton, 495 miles.....	1 28½
Cost per ton 1 mile	2½ mills.
Cost per bushel of wheat 495 miles	$\frac{3.861}{1000}$ cents.

A comparison of these with the results first obtained for this mode of transportation shows that the reduction in cost, due to the reduction of two days in the duration of the trip, amounts to 14 per cent between Buffalo and Troy, and to 11.16 per cent between Buffalo and New York. If the time of the tug between Buffalo and Troy, with its tow of four boats, be twelve days, the conclusion is, that the first two modes of transportation are much the cheapest, and that, as between those two modes, it is not easy to decide. If, however, the time of the tug be ten days, the costs of movement are so nearly equal that the preference must depend upon certain contingencies which may, and no doubt will, affect the three modes differently, but which cannot be estimated.

Considering the independent character of the boat carrying its own power, its higher rate of speed, and the ability which this speed will give it to command paying return cargoes, it would seem that transportation can be effected by such boats with decidedly greater economy than by either of the other two modes.

RELATIVE ECONOMY OF STEAM AND ANIMAL POWER.

The experience of the past two seasons of navigation has furnished reliable data upon which to base estimates of the cost of effecting the movement of the tonnage, of the Erie canal, both by steam and animal power, and to ascertain to what extent a saving may be effected by the substitution of the former for the latter. These estimates, in order that they may be at all satisfactory or reliable, must be made upon the basis of an entire season's work, and, so far as steam is con-

cerned, upon what steam *might* do with full seven feet of water, and with horse-boats out of the way, rather than upon what it *has* done, in spite of all the obstacles which it has encountered during the recent trials. A season's movement will therefore be taken at 3,000,000 tons from Buffalo to New York, and 750,000 tons from New York to Buffalo. It will be assumed that this tonnage is to be transported annually, and that the question to be answered is, what will be the cost of equipping the canal with the necessary boats, and of transporting this tonnage by each of these two modes?

The duration of a round trip, or the number of round trips that may be made by the steamer and the horse-boat, during the average season of navigation, with the same condition of canal, must first be determined. In the case of the horse-boat we have already seen that, under present conditions, the average time occupied in making the trip from Buffalo to Troy is, practically, ten days. Allowing two days each way on the Hudson river, and ten days for the return trip from Troy to Buffalo, partly loaded, against the current, and allowing six days for detentions at Buffalo, Troy and New York, the time consumed in making a round trip will be thirty days, and $7\frac{1}{3}$ trips may be made in a season of 230 days. At present it is believed that boats towed by horses in efficient condition do not exceed 7 trips, while the average for all the boats is not more than 6. The estimate will, therefore, be upon the basis of 7 round trips for the horse-boat, allowing one additional trip for the improved condition of the canal. Towing will be estimated at 35 cents per mile on the canal, and at \$40 per single trip on the river, in Troy, and in the harbors of Buffalo and New York.

In the case of the steamboat, the time from Buffalo to Troy will be taken at 5 days, allowing 10 hours for improved condition of the canal and the absence of horse-boats, and at 30 hours on the river; making the time from Buffalo to New York, $6\frac{1}{2}$ days and the running time per round trip, $12\frac{1}{2}$ days. Adding 5 days for detention at both ends of the route, the total time consumed in making a round trip will be $17\frac{1}{2}$ days; while the number of round trips per season will be 13.1-7, say 13. The coal consumption will be taken at 45 pounds per mile, or a little less than the mean of the rates of the "Baxter" and the "Newman," and the cost of the coal per ton will be estimated at \$5.50. The cargoes east or in the direction of the maximum tonnage, for the horse-boat and steamer, will be taken at 230 and 200 tons, respectively.

The foregoing embrace all the items of expense about which there

can be any serious question; the other items will appear in their proper places and need not be particularly referred to here. The estimates will then stand as follows:

Estimate of the cost of transporting 3,750,000 tons between Buffalo and New York in 7½ months by animal power, in boats carrying 230 tons each.

Number of boats required, 1,863.

Cost of boats at \$4,000 each.....	\$7,452,000
Cost of horses, 7,452, at \$150.....	1,117,800
Cost of harness, etc., at say \$20 per horse	149,040
Total cost of equipment	<u>\$8,718,840</u>

Interest on cost of boats at 7 per cent	\$521,640 00
Maintenance 10 per cent	745,200 00
Cost of towing on canal, 8,998,290 miles at 35 cents	3,149,401 50
Cost of towing on river and in harbors	1,043,280 00
Cost of crew for wages and subsistence, per boat:	
1 captain 7½ months at \$60.....	\$450
2 men 7½ months at \$30	450
1 cook 7½ months at \$12.....	90
Board, 4 persons, 230 days at 50c.....	460
Board, 2 drivers,* 140 days at 50c....	70
	<u>\$1,520</u>

Cost of crews for 1,863 boats 7½ months	2,831,760 00
Total cost of a season's work.....	<u>\$8,291,281 50</u>

Deductions.

Cost per boat per season	\$4,450 50
Cost per ton moved 495 miles	2 21 ¹ / ₁₀
Cost per ton moved 1 mile	4 ⁴⁶⁴ / ₁₀₀₀ mills.
Cost per bushel of wheat from Buffalo to New York.....	<u>6⁶³³/₁₀₀₀ cents.</u>

If the boats run light from New York to Buffalo, the foregoing will be modified thus:

Cost per ton moved 495 miles	\$2 78 ⁹ / ₁₀
Cost per ton moved 1 mile	5 ⁵⁸ / ₁₀₀₀ mills.
Cost per bushel of wheat 495 miles	<u>8³⁶⁷/₁₀₀₀ cents.</u>

* One driver on duty at a time.

An analysis of this estimate shows that the per centages of the several items of cost are as follows :

Interest ..\	6.3 per cent.
Maintenance	8.9 per cent.
Towage on the canal.....	38.0 per cent.
Towage on river and in harbors.....	12.6 per cent.
Crew and subsistence.....	34.2 per cent.
	<hr/>
	100.0 per cent.

Or, if we take only the three elements of boat, towage and crew, we have :

Boat (interest and maintenance).....	15.2 per cent.
Towage ..\	50.6 per cent.
Crew ..	34.2 per cent.

In the foregoing estimate it has been assumed that the canal towage is to be done by towing companies, and the result of course includes their profits. In order to eliminate these, it will be necessary to estimate the actual cost of towing when the horses are owned and subsisted by the boatmen.

Estimate of the cost per mile of horse-towage.

Cost of four horses at \$150.....	\$600 00
Cost of harness	80 00
	<hr/>
Total.....	\$680 00
	<hr/>
Interest on cost of horses at 7 per cent	\$42 00
Maintenance, $33\frac{1}{3}$ per cent.....	200 00
Keeping, 230 days, at 60 cents each	552 00
Keeping, 135 days, at 25 cents each.....	135 00
Shoeing, at \$25 each	100 00
Harness, interest and maintenance.....	25 00
Two drivers, $7\frac{1}{2}$ months, at \$18 each.....	270 00
	<hr/>
Total	\$1,324 00

Distance towed, miles, $7 \times 2 \times 345 = 4,830$. Cost per mile, 27.4 cents.

If the board of the drivers be added, the cost will be about 30 cents per mile; but as that item has been included in the subsistence of the crew, it is not introduced in the above. Employing this sum—27.4 cents—as the cost per mile of canal towage, the cost of a season's work for the assumed tonnage will be reduced to \$7,607,411.46

From which we deduce the following :

Cost per boat per annum.....	\$4,083 42
Cost per ton moved 495 miles.....	2 02 $\frac{1}{6}$

Cost per ton moved one mile	4 $\frac{1}{10}$ mills.
Cost per bushel of wheat, 495 miles.....	6 $\frac{87}{1000}$ cts.

If the boat run light from New York to Buffalo, these results, except the first, will be increased 25 per cent, and will therefore stand as follows:

Cost per ton moved 495 miles	\$2 53 $\frac{6}{10}$
Cost per ton moved one mile	5 $\frac{1}{10}$ mills.
Cost per bushel of wheat, 495 miles	7 $\frac{608}{1000}$ cts.

The per centages of the several items of cost will be :

Interest	6.8 per cent.
Maintenance	9.8 per cent.
Towage on the canal	32.3 per cent.
Towage on the river and in harbors	13.9 per cent.
Crew and subsistence.....	37.2 per cent.
Total	100 per cent.

Or, taking only the three elements of boat, towage and crew, we have:

Boat (interest and maintenance).....	16.6 per cent.
Towage	46.2 per cent.
Crew	37.2 per cent.
Total.....	100 per cent.

Estimate of the cost of transporting 3,750,000 tons between Buffalo and New York, in 7 $\frac{1}{2}$ months, by steam power, in boats carrying 200 tons.

Number of boats required, 1,154.

Cost of boats at \$7,000 each	\$8,078,000
Interest on cost of boats at 7 per cent	\$565,460 00
Maintenance of boats at 10 per cent	807,800 00
Coal, 334,169.55 tons at \$5.50	1,837,932 52
Oil, tallow and waste	160,000 00
Cost of crew, wages and subsistence per boat:	
1 captain, 7 $\frac{1}{2}$ months, at \$60.....	\$450 00
2 men, 7 $\frac{1}{2}$ months, at \$30.....	450 00
2 engineers, 7 $\frac{1}{2}$ months, \$90 for both,	675 00
1 cook, 7 $\frac{1}{2}$ months, at \$12	90 00
Board, 6 persons 230 days, at 50c...	690 00
	\$2,355 00
Cost of crews for 1,154 boats, at \$2,355 each.....	2,717,670 00
Total cost of a season's work	\$6,088,862 52

Deductions.

Cost per boat per season	\$5,276 31
Cost per ton moved 495 miles	1 62 $\frac{3}{10}$
Cost per ton moved 1 mile	3 $\frac{28}{100}$ mills.
Cost of bushel of wheat moved 495 miles	4 $\frac{87}{100}$ cts.

If the boats run light, west, these costs, except the first, will be increased 25 per cent, and will therefore be:

Cost per ton moved 495 miles	\$2 02 $\frac{2}{10}$
Cost per ton moved 1 mile	4 $\frac{1}{10}$ mills.
Cost per bushel of wheat moved 495 miles	6 $\frac{87}{100}$ cts.

If the steamer carry 100 tons west, the annual tonnage would be 4,500,000 tons, and cost as follows:

Cost per ton moved 495 miles	\$1 69 $\frac{1}{10}$
Cost per ton moved 1 mile	2 $\frac{73}{100}$ mills.
Cost per bushel of wheat moved 495 miles	5 $\frac{7}{100}$ cents.

An analysis of the estimate shows the cost to be distributed as follows:

Interest on cost of boats alone	5.3 per cent.
Maintenance	7.6 per cent.
Steam power, including engines, fuel, engineers, etc.,	59.6 per cent.
Crew, including subsistence (exclusive of engineers),	27.5 per cent.
Total	100 per cent.

Or, taking the three elements of boat, steam power and crew, the distribution of cost will be:

Cost of boat, exclusive of engines	12.9 per cent.
Cost of steam power	59.6 per cent.
Cost of crews	27.5 per cent.
Total	100 per cent.

Comparing the two modes of transportation, under the same conditions as to tonnage, we have the cost per ton mile by animal power hired by the boatmen

Cost per ton mile by animal power owned by the boatmen	4 $\frac{464}{1000}$ mills.
Cost per ton mile by steam power	3 $\frac{28}{100}$ mills.

It appears, therefore, that the transportation by steam power is 26½ per cent cheaper than by hired animal power, and 20 per cent cheaper than animal power owned by the boatmen.

The following table shows the distribution of cost in the three cases:

COST OF TRANSPORTATION.	MODE OF TRANSPORTATION.		
	By animal power, hired, per cent.	By animal power, owned, per cent.	By steam power, per cent.
Cost of boat	15.2	16.6	12.9
Cost of power	50.6	46.2	59.6
Cost of crew	34.2	37.2	27.5
Totals	100	100	100

It is to be observed here, that the estimates from which the foregoing deductions have been drawn have been made upon the basis of an assumed improved condition of the canals, by which an additional round trip has been allowed to the horse-boat, and that in the case of the steamer the coal consumption used was nearly 50 per cent greater than that of the "Baxter" during the season of 1872. As results of this treatment, we have the cost in the former case smaller than it now is; and in the latter, larger than we should have been justified in making it. For this reason, the economy of steam power appears less than may, and doubtless will, be realized.

The following modifications of the foregoing estimates are presented as indicating the *ultimate* measure of the economy which may be expected to result from the use of steam as compared with the present performances of horse-boats, making an average of 6 round trips between Buffalo and New York, and carrying 230 tons. The steamer is assumed to make 14 round trips, with a coal consumption of 35 pounds per mile, which is believed to be all that can be accomplished by steam on the canal.

Estimated cost of transporting 3,750,000 tons annually between Buffalo and New York, in boats carrying 230 tons and making 6 round trips per season (including profits of towing companies).

Interest on cost of boats.....	\$608,580 00
Maintenance	896,400 00
Towing	4,192,681 50
Crews, including subsistence.....	3,803,720 00
	<hr/>
	\$9,001,381 50

Deductions.

Cost of boat per season	\$4,140 47
Cost of boat per round trip	690 08
Cost per ton moved 495 miles	2 66 $\frac{7}{10}$
Cost per ton moved one mile	5 $\frac{32}{100}$ ms.
Cost per bushel of wheat from Buffalo to Troy,	8 cents.

These results include, of course, interest upon investment, cost of maintenance and cost of operating the boats, and are based upon movements of 3,000,000 tons toward tide water and 750,000 tons from tide water. If 1.55 cents per bushel be added for tolls, the total cost of transporting a bushel of wheat from Buffalo to New York, by the present mode, appears to be 9 $\frac{55}{100}$ cents.

Estimated cost of transporting 3,750,000 tons annually between Buffalo and New York, in steamers carrying 200 tons and making 14 round trips per season:

Interest on cost of boats	\$525,070 00
Maintenance	750,100 00
Coal, oil, tallow and waste	1,181,073 62
Crews and subsistence	2,523,550 71
Total	\$4,979,794 33

Deductions.

Cost of boat per season	\$4,645 33
Cost of boat per round trip	331 81
Cost per ton moved 495 miles	1 32 $\frac{8}{10}$
Cost per ton moved 1 mile	2 $\frac{68}{100}$ mills.
Cost per bushel of wheat from Buffalo to Troy,	3 $\frac{284}{1000}$ cents.
Cost per bushel of wheat from Buffalo to Troy, including tolls	5 $\frac{534}{1000}$ cents.

Comparing results in the two cases, we find that by the use of steam a reduction in the present cost of transportation of 50 $\frac{2}{10}$ per cent may be effected. Including tolls in both cases, the reduction in cost is 42 per cent.

To accomplish the assumed number of round trips, it will be necessary—

1. To maintain an average speed of three miles per hour on the canal, including lockages.
2. To maintain an average speed of five miles on the river.
3. To reduce the detentions, at Buffalo and New York, to 4 days 8 $\frac{1}{2}$ hours per round trip.

With the canal in good condition, the experience of the past season has demonstrated that the first two conditions can be satisfied. With regard to the third requirement, it does not seem unreasonable to suppose that, with proper supervision and direction, it may also be satisfied. A slightly increased rate of speed would admit of longer delay in port, but it would be attended with an increase in the coal consumption, which would be more than an equivalent to the extra exertion necessary to reduce the delay to the time stated.

Steam on Foreign Canals.

Through the courtesy of Hon. W. King, U. S. Consul at Dublin, I have been put in possession of a pamphlet containing "Excerpt Minutes of the Proceedings of the British Institution of Civil Engineers," and comprising papers presented at a meeting held in November, 1866, together with discussions of the same at subsequent meetings. From this pamphlet the following information has been compiled:

Steam towing on the Gloucester and Berkeley canal.

This is a ship canal, $16\frac{1}{2}$ miles in length, extending from Gloucester, on the Severn, to Sharpness Point, in the parish of Berkeley. It is level from end to end, and has a depth of from 18 to $18\frac{1}{2}$ feet. Its width varies from 80 to 200 feet at the surface, and from 13 to 20 feet at the bottom. The banks were originally unprotected, and were built upon slopes as follows: From the water line to a depth of about 3 feet, the slope was 2 to 1; at this depth occurred a level bench about 3 feet wide, from the inner edge of which a slope of $1\frac{1}{2}$ to 1 extended to the bottom.

This canal is navigated by vessels up to 600 and 700 tons register, drawing 15 to 16 feet of water.

Prior to 1860, all sea-going vessels having occasion to pass through this canal were towed by horses at a speed of from one to three miles per hour, and a cost of one farthing ($4\frac{1}{2}$ mills) per register ton mile.

In 1860, three steam tugs were placed on this canal. Two were 65 feet long, 12 feet beam, and drew 6 feet 3 inches of water; they were fitted with high-pressure engines, with cylinders 20 inches in diameter by 18 inches stroke. The screws were three-bladed, five feet in diameter and $6\frac{1}{2}$ feet pitch. The third tug was 55 feet long, $9\frac{1}{2}$ feet beam, and drew 5 feet of water. The cylinder was 16 inches diameter, and had a stroke of piston of 18 inches. Screw, 3-bladed, 4 feet diameter and $5\frac{1}{2}$ feet pitch. Coal consumption $1\frac{1}{2}$ to 2 gross tons per 24 working hours.

In 1866, these tugs did nearly all the towing required on the canal.

In four years ending March 25, 1865, 1,119,334 tons of goods were towed 16 miles, at a cost of 6,400 pounds, including 15 per cent per annum on the cost of the tugs to cover interest, repairs and renewals, or at the rate of $1\frac{5}{100}$ mills per ton mile, showing a saving of over 65 per cent on the cost of horse towage. With an increase in tonnage during 1865, the cost per ton mile was reduced to less than half the above, or about $\frac{7}{10}$ of a mill.

Vessels are towed singly or in trains, and the speed varies from 2 to 4 miles per hour. The speed, as a rule, is limited to the latter figure.

The employment of steam is said to have been found, in nearly every way, advantageous. The work is found to be economized and the banks are less injured by the rubbing of the vessels.

The only disadvantage of this system, on a canal, the sides of which at the water edge are unprotected, is the constant wear at this part by the disturbed water. This injury is confined to a depth of 18 inches only, one-half of which is above and one-half below the water line. It was remedied by a wall, 2 feet high, half above and half below the water line, along which the water runs harmlessly. A portion of this wall, which had been in use three years, was found to answer the purpose completely.

In concluding this paper, Mr. Clegram, who presented it, says: "An extent of traffic has been carried on the canal during the last year that could scarcely have been accomplished by horse-power; and so manifest is the economy and efficiency of the system, that it far more than compensates for the increased cost of protecting and maintaining the sides of the canal."

Grand Canal, Ireland.

This canal is 160 miles in length. Its locks are 60 feet long, 13 feet 6 inches wide, with a depth of 5 feet 2 inches of water upon the miter-sills; but the draft of water by the boats is limited to 4 feet 3 inches. The width of the canal varies from 60 to 80 feet, and the side slopes are so flat that there is but about 30 feet in width at the center of navigable depth.

The annual tonnage of the Grand canal is about 300,000 tons.

The first effort to introduce steam upon this canal was made in the year 1851, when Mr. J. Scott Russell built a boat which was designed to carry its own power and cargo. This boat, which was propelled by a single screw, was not a success on account of the extent to which

its carrying capacity was reduced by the weight of the machinery. Two other boats were built about the same time, which were provided with double, or twin screws, but they were also unsuccessful, and for the reason already stated.

In 1860, a system of chain haulage was experimented with and proved a perfect failure.

The most successful effort was made about eight years ago. It consisted in the introduction of small steam-tugs, which were placed upon a level $25\frac{1}{2}$ miles long, for towing boats in trains. These tugs were 60 feet long and 7 feet beam; were fitted with powerful machinery, and were able to tow five boats, carrying 40 tons each, or an aggregate of 200 tons. They were able to tow a train of three boats, carrying an aggregate of 120 tons, at a speed of $2\frac{1}{2}$ miles per hour, with a slip of about 50 per cent. The boats of this canal are 60 feet long, 13 feet wide and draw four feet when carrying 40 tons.

In 1866, horses had been withdrawn from the level referred to, and the towing was done exclusively by two of these steamers.

Upon the Shannon, steamers 72 feet long, 13 feet 3 inches beam, drawing 4 feet 8 inches of water, and carrying 50 tons of cargo, have been successfully introduced.

The small size of this canal, and the limited carrying capacity of its boats, would seem to preclude the successful general introduction of steam upon it, in cargo-carrying boats, or for towing purposes, where locks occur at short intervals.

Forth and Clyde Navigation.

The Forth and Clyde canal extends from Grangemouth on the Forth, to Bowling on the Clyde, a distance of 35 miles. From a point about 26 miles from Grangemouth, a branch 4 miles in length leads to Glasgow, where it connects with the Monkland canal, leading from Glasgow, 12 miles, to Woodhall. On the Forth and Clyde, in 35 miles, there are 40 locks, at intervals varying from 50 yards to 17 miles, while on the Monkland there are 10 locks in a distance of 12 miles.

The capacity of the horse-boats used on the Monkland canal is about 60 tons, and the movement is nearly all in one direction, the boats returning light. The cost of transporting 60 tons ten miles, for towing and for the crew, including the return of the empty boat, was, in 1859, about $9\frac{1}{2}$ pence per boat mile for the round trip, which is at the rate of about $2\frac{1}{4}$ mills per ton mile.

For a round trip of 80 miles, made up of 10 miles on the Monk-

land canal and 30 miles on the Forth and Clyde and return, the cost per boat mile was about $11\frac{1}{2}$ pence, or at the rate of $3\frac{1}{2}$ mills per ton mile.

Efforts to introduce steam upon this line date back as far as 1789, when Symington designed and built steamers for that purpose. Again, in 1801, the "Charlotte Dundas" was built and tried; and at intervals since that time experiments have been made, all of which, however, resulted unsatisfactorily.

In the year 1856, a steamer designed by Mr. James Milne, of the Forth and Clyde navigation, was built and put in operation. This steamer, which had been a horse-boat, carrying 80 tons, had two $6\frac{1}{2}$ inch cylinders, with ten inches stroke of piston. The boiler was upright, tubular, 3 feet in diameter, and weighed, together with the engines and water, $2\frac{1}{2}$ tons. With 35 pounds of steam, the boat was propelled, loaded, at a speed of $4\frac{1}{2}$ to 5 miles per hour. From the date of their completion, in 1856, to 1866, a period of ten years, the engines had been constantly at work, and were still (1866) working most satisfactorily, but little repair and no renewals having been needed either for boiler or engines. The boiler was intended to carry 100 pounds pressure, and the surplus power was designed to be employed in towing, but the traffic not requiring it, the boat had not been so used. Mr. Milne objected to towing, on account of the delay which must occur at the numerous locks.

Mr. Milne said, "The application of steam power to this boat having proved successful, engines were designed and fitted to the luggage boat 'Marjory,' carrying 35 tons; to one of the canal ice-breakers; to masted lighters for canal and coasting trade, carrying 120 tons; and designs for a scow or mineral barge, carrying 60 tons, on the Monkland canal, and 75 tons, on the Forth and Clyde canal, all of which proved successful, and had been the precursors of about 70 canal steamers now (1866) at work on the canal, and from the canal to the contiguous sea-coasts."

The rate of increase in the number of steamers on these canals is indicated in the following table:

1856.....	1 steamer.	1862.....	36 steamers.
1857.....	2 steamers.	1863.....	44 steamers.
1858.....	7 steamers.	1864.....	50 steamers.
1859.....	18 steamers.	1865.....	58 steamers.
1860.....	25 steamers.	1866.....	70 steamers.
1861.....	30 steamers.		

The costs of transportation by horse and steam power appear to have been as follows:

By horse power	60 tons, 10 miles,	2½ mills per ton mile;
By horse power	60 tons, 40 miles,	3½ mills per ton mile;
By steam power	60 tons, 40 miles,	2 mills per ton mile;

showing a saving of about 43 per cent. In each case the boat made the return trip light.

As to the saving in time, it is said that on trips of average distance, as 30 or 40 miles and return, the steamers make three trips while the horse-boat makes two; on longer trips, the saving would obviously be greater.

Regent's Canal.

On this canal the sectional area of the waterway, as compared with that of the boats navigating it, is about as 4 to 1. The average weight of the boats or barges is taken at 15 tons, and the average cargo at about 55 tons.

In the year 1854 the canal company issued an advertisement offering a premium of £100 for the best, and of £50 for the second best tug-boat which should be put in competition by a certain day. The premium was awarded in August, 1855, to Mr. Inshaw, of Birmingham, for the screw tug-boat "Birmingham," which was purchased by the company, and which was, until 1865, constantly employed in towing barges upon the summit level of the canal. This tug-boat was 70 feet 8 inches long, 6 feet 8 inches beam, and drew 3½ feet of water. It was fitted with a multitubular boiler and an engine having a pair of 7-inch cylinders, which was operated with steam of 60 to 70 pounds pressure. Two screws, having a pitch of 4 feet, were placed near the stern, and revolved in opposite directions by means of bevel wheels geared two to one. The capacity of this tug may be understood from the following performance, made June 15th, 1862. Between the hours of 6.15 A. M., and 7.45 P. M., a train of 20 barges, 17 of which were laden with an aggregate of 931 tons, was towed a distance of 11½ miles. The cost of working this tug for the 8 months ending May 31st, 1865, was £344 2s. The distance steamed was 3,519 miles; number of barges hauled 2,023; the gross amount of cargo conveyed was 59,738 tons. The cost, per train mile, for labor, repairs and fuel was 1.96 of a shilling (33½ cents). The cost per ton mile for the same items was 1.383 of a penny (2½ cents). In each case the cost of fuel was ⅔, and that of labor and repairs ⅓ of the entire cost. The coal consumption is said to have been rather large, on account of insufficient boiler capacity.

The opinion was expressed that steam could not be economically employed on the Regent's canal by the canal traders, unless some plan were adopted for combining the tug with the cargo vessel, so that they might pass through the locks together, and be readily separated at the end of the journey. In accordance with this view, Mr. Thomas, in 1859, in a report to the canal company, recommended that the boats be constructed in two parts; the total length not to exceed the length of the boats then in use. It was proposed that the part containing the machinery and rudder should be as short as it might be practicable to have it, and should form the after part of the combination. This should be made to connect with the fore, or cargo-carrying part of the boat, in such a manner that the two would form a perfectly continuous and complete steamer. The principal advantage which it was claimed would be derived from this plan would result from the possibility of keeping the steam power constantly at work, and from the fact that the necessity of fitting steam power permanently to each boat would be obviated.

The River Severn.

This river, which is in some places narrow and tortuous, has been rendered navigable by the construction of dams and locks. The boats trading upon it carry 30 to 40 tons and draw about $3\frac{1}{2}$ feet of water. Steam tugs were introduced about the year 1856. Those first used had engines of 30 to 40 horse-power, and were propelled by reefing paddle-wheels. These boats answered very well; they towed trains of as many as twelve boats, carrying cargoes of 30 tons each, at speeds of from $2\frac{1}{2}$ to 3 miles per hour, against a current of 2 miles per hour. In order to avoid the detentions at the locks, the plan has been adopted of constructing large basins in connection with them. These basins are each provided with a pair of gates, and thus permit the passage of an entire tow at a single lockage. Tows are thus locked through very expeditiously.

Since the introduction of these tugs, boats of a different description have been employed and have been found to work still more satisfactorily. These are barges 70 feet long, 12 feet beam, and drawing $3\frac{1}{2}$ feet of water; they are each fitted with a pair of direct-acting engines, with cylinders $7\frac{1}{2}$ inches in diameter and 9 inches stroke of piston. Twin screws 2 feet 6 inches in diameter are used. The boats thus fitted are able to carry 40 tons of cargo, and at the same time to tow two boats carrying 30 tons each. The steamer with a single boat in tow, together carrying 70 tons, can make $2\frac{1}{2}$ miles per hour against

a current $3\frac{1}{2}$ to 4 miles per hour. This is considered the most economical mode of steam towing on the Severn. One hundred tons has been moved, with a consumption of from 67 to 85 pounds of coal per mile.

Ashby-de-la-Zouch Canal.

Upon this canal there is a large coal traffic, and as there is a 30-mile level over which this traffic passes, the coal owners proposed, some years since, to employ steam power for towing purposes, and with that view ordered a tug from Mr. Inshaw, the successful competitor upon the Regent's canal. The Midland Railway Company, however, who were the proprietors of the canal, refused to allow the boats to be used, on the ground that it would cause injury to the banks.

Proceedings were instituted in chancery, and for the purpose of obtaining information as to the effect which would be produced, Mr. Pole was directed, as engineer, to conduct experiments with the boat which had been provided. These experiments were made in the month of May, 1859, with the tug, which was of the size ordinarily used on the canal, to wit: 70 feet long, 7 feet wide, 4 feet deep. It was fitted with engines of 6 horse-power (nominal?), working twin screws at the stern. The experiments comprised a variety of conditions, as to the load of the steamer and as to the number of boats towed, and the speeds attained varied from $1\frac{1}{2}$ to 5 miles per hour.

The results of the experiments are thus stated by Mr. Pole: "Up to a speed of 3 miles per hour no wave of injurious character appeared. Between 3 and $3\frac{1}{2}$ miles per hour, a breaking wave appeared occasionally, in curves and shallows. Above $3\frac{1}{2}$ miles per hour, the breaking wave became continuous and took a more marked character. At 4 miles per hour the injurious character of the wave became very decided. At 5 miles per hour, even in a much enlarged section, the wave was still more increased, breaking sometimes over the tow-path, and being followed by other waves in succession." "It was a very decided result of these experiments that the twin screw did not, of itself, at any speed attained, give rise to any wave or surge at all injurious to the banks of the canal."

Mr. Pole, as the result of his experiments, was led to recommend the admission of steamboats upon the canal, with such a limitation of their speed as would avoid the production of an injurious wave. Steamers were admitted upon the canal in accordance with this recommendation.

Towing on the River Thames.

Steam was substituted for horse-power for towing on that portion of this river extending from London to Oxford, some years ago. Two tugs were furnished with engines of 30 and 40 horse-power, and feathering floats immersed three feet below the surface. These tugs frequently towed as many as ten barges from London to Richmond, where three or four were left, and the remainder taken as far as Oxford. The towing had to be done against a current in some places reaching 3 miles per hour. These steamers worked profitably for four years, until the traffic left the Thames and went to the Great Western railway.

The cost of towing was $1\frac{8}{10}$ mills per ton mile.

These tugs were sold to the commissioners of the river Severn. One was lost on the passage, the other, in 1866, was still at work.

Mr. Allen, who built these tugs, says: "Probably one of the greatest obstacles to the development of steam-power on the canals is the smallness of the locks, which generally admit of only two barges being locked at the same time."

The River Weaver.

Improvements in the navigation of this river were undertaken with the view of enabling it to compete with railways in the transportation of about a million tons of salt, together with the coal used in its manufacture. In a distance of 24 miles, 8 pools were formed, which were from 3 to 6 miles in length, and connected by locks. The locks were 100 feet long, 23 feet wide, and admitted vessels drawing 8 feet of water and carrying 150 tons.

It was found, however, that even with double locks, the delay with steam tugs towing several barges was so serious and so interfered with the traffic that the plan had to be abandoned.

In 1864, steam barges carrying their own cargoes were tried, and were so successful that others were afterward introduced. These barges were 85 feet long, 19 feet 6 inches beam, drew about 7 feet 6 inches of water, and carried from 180 to 200 tons each. With engines of 20-horse power, no difficulty was found in towing two or three barges carrying 100 tons each; but the locks were still a cause of serious delay. To remedy this difficulty, a third lock was built for each pool. These locks were 200 feet long and 40 feet wide, and enable each tug to take three barges through at a single lockage.

In 1866, horse towage was being abandoned on the Weaver, the last described steamers being considered to be most profitable.

The improved navigation has the following minimum dimensions of cross section: width at surface, 90 feet; width at bottom, 54 feet; depth, 12 feet.

Grand Junction Canal.

The steamer "Dart," upon this canal, was 70 feet long, 7 feet beam, and drew, loaded, 4 feet of water. She was fitted with a vertical, high-pressure engine, the cylinder of which was 9 inches in diameter, and had 8 inches stroke of piston. The boiler was of the vertical flue type, 7 feet high and 4 feet 3 inches diameter, and its grate and heating surfaces were 5 and 120 square feet respectively. The screw was of the Griffith's patent, 3-bladed and 3 feet in diameter; and, with a boiler pressure of 75 pounds, the steam being cut off at half-stroke, made 180 revolutions per minute.

The "Dart" was designed to tow a single barge, and, between October 1st, 1864, and October 1st, 1865, steamed 11,280 miles, carrying and towing 3,182 tons. The working expense, including the engine and accompanying boat, was £366 13s., or at the rate of 7.8 pence ($14\frac{1}{2}$ cents) per train mile, or 0.184 of a penny ($3\frac{1}{2}$ mills) per ton mile of cargo.

Aire and Calder Navigation.

The main line of this navigation extends between Leeds, Wakefield and Goole, a distance of 36 miles. The depth of water is 8 feet 6 inches in the canals, and 9 to 10 feet in the rivers. The width at top and bottom is 60 to 66 feet and 30 feet respectively; while on the rivers the surface width is 100 to 150 feet. The average sectional area is 380 (?) square feet. In the 36 miles there are 17 locks, having a total fall of 116 feet. In some portions of the canal, the banks were protected by dwarf slope-walls, having a depth of $1\frac{1}{2}$ feet of water against them.

Steam towage was introduced here as far back as 1836, and was at first conducted by means of paddle-wheel tugs, with high-pressure engines, having two cylinders 11 inches in diameter and a stroke of 20 inches. The paddle-wheels were $9\frac{1}{2}$ feet in diameter and 3 feet 6 inches wide. The speed attained with three boats carrying 100 tons of cargo was 3 miles per hour in the canals and 4 miles in the rivers. The cost per boat per mile was 8.516 pence ($15\frac{4}{10}$ cents), and per ton mile 0.473 of a penny (8.56 mills).

In 1853, improved means of steam towage were introduced, which, in 1866, were still in use. These consisted of two systems, the one

that of the tug, carrying cargo and towing at the same time, and the other that of tugs having greater power, towing exclusively.

The dimensions of the first class, which was employed exclusively in merchandise traffic, were: Length, 63 feet 6 inches; beam, 12 feet 6 inches; depth, 7 feet 6 inches; capacity for cargo, 30 tons. The machinery occupied 20 feet of the after part of the boat, and consisted of high-pressure direct-acting engines, with cylinders $8\frac{1}{2}$ inches diameter and 12 inches stroke of piston. The boilers had 12 square feet of grate and 243 square feet of heating surface, and the working pressure was 100 pounds. The screw propeller was 5 feet 3 inches in diameter, 7 feet pitch, and made about 180 revolutions per minute. The traffic was conducted during the night at an average speed of $4\frac{1}{2}$ miles per hour, at which speed the banks sustained no injury. For the seven years preceding 1866, the average cost of towing was 2.125 pence ($3\frac{2}{10}$ cents) per boat mile, and 0.085 of a penny (1.54 mills) per ton mile.

The second class of boats were similar in size to the first, and were employed solely in the general traffic of the canal. The whole space was devoted to the machinery, except so much as was set apart for the crew. The engines were direct-acting, had cylinders varying from 15 to 18 inches in diameter, and with strokes varying from 12 to 16 inches, and the working steam pressure was from 60 to 80 pounds. The boilers were return-tubular, and for the 16-inch cylinders had $16\frac{1}{2}$ square feet of grate and 920 square feet of heating surface. These tugs would tow 10 boats, carrying 700 tons of cargo, at 3 miles per hour on the canal and at 4 miles in the rivers. The charges for towing were $\frac{1}{10}$ of a penny ($1\frac{8}{10}$ mills) per ton mile against the current, and $\frac{1}{12}$ of a penny ($1\frac{1}{2}$ mills) down stream.

Still later, two boats, carrying 160 tons, were fitted with steam power and put to work on this navigation, but with what results we are uninformed.

In 1866 a new plan was devised by Mr. Bartholomew for the transportation of minerals on this canal. This plan was thus described: "It consisted of a train composed of 7 rectangular boats, having their ends constructed with an outward curvature of 6 inches. The dimensions of the boats were: Length 20 feet, beam 15 to 16 feet, depth 7 feet 3 inches. Each compartment or boat was capable of carrying from 25 to 35 tons. When formed into a train, they retained their lateral position by means of a projecting stem which fitted into a corresponding hollow stern post. They were held together and steered by wire ropes which passed through suitable guides on each

side, and which extended from the steam compartment at the after end to the leading or stem portion at the other. They were tightened by hydraulic power, and, when together, formed a train or vessel 190 feet in length. They were steered by two steam cylinders having their pistons in direct connection with the wire ropes, and were found to answer well in all respects. Each compartment was fitted with spring buffers at its corners." * * * "The compartments were discharged by hydraulic power, which raised the compartment and its cargo, weighing about 42 tons, to the elevation required to suit the height of the ship. At this stage of the operation the compartment was gradually turned on its side and the contents discharged into a *chute*, and thence into the ship. In this way 100 to 200 tons per hour were shipped."

An examination was made of this canal after screw propellers had been in use upon it about 10 years, and it was found that no mischief had been done to the banks.

Steam has also been introduced upon the river Lee, the Shropshire Union canal, the Kennet and Avon, Leeds and Liverpool, and many other canals; but so far as steam trains are concerned, the results have been almost invariably unsatisfactory whenever there were numerous locks. The chief causes of failure have been the difficulties encountered in passing the locks, and in passing the shoal water sections where the resistance, on account of the restricted water-way, was necessarily greater than in water of fair width and depth.

The canals referred to, as well as foreign canals generally, are, as a rule, very small. The surface widths are, in many cases, not over 45 feet; while the depths, which in some cases are 5 feet and over, are generally not more than 4 feet. The sections of the water-ways are in some instances as small as 120 square feet, while even in many of the larger canals they do not exceed 150 feet. In introducing steam upon such canals, we can readily understand that serious, and sometimes insurmountable difficulties may be presented. Yet it appears that, notwithstanding these difficulties, steam navigation has, in some of its forms, been successfully introduced on many of these canals. It appears further, that the machinery used may be run 5, 7 and even 10 years with very trifling repairs, and hence that its endurance may be regarded as nearly, if not quite, equal to that of other steam machinery.

The following table gives the lengths and dimensions of some of the English canals :

NAME OF CANAL.	When completed.	Length in miles.	BREADTH.		Depth.	
			Top.	Bottom.		
			Feet.	Feet.	Ft.	In.
Sanky	1755	12	48	.....	5	7
Leeds and Liverpool.....	1770	108½	42	27	5	
Basingstoke	1778	87	38	... ..	5	6
Thames and Severn.....	1788	80	42	30	5	
Gloucester and Berkeley	1798	16½	70	18 to 20	18	
Grand Junction	1798	90	43	.....	5	
Kennet and Avon	1794	57	44	24	5	
Aberdeenshire.....	1796	18½	23	.....	8	9
Thames and Medway.....	1800	8½	50	28	7	
Caledonian	1803	23	40	.....	20	
Rye, or Royal Military.....	1807	30	72	36	9	

Prior to the general introduction of railways, the number of miles of canal—exclusive of improved rivers—in England alone, amounted to over 2,200.

In Holland and Sweden, too, steam has been successfully introduced, and is rapidly superseding horse-towage. At first, steam was used for towing simply, but the advantages of larger boats, carrying their own steam power, were soon discovered, and such boats adopted. The chief objection to these was, that the engineers were not constantly employed. This has been met by arranging steam-winchcs combined with the engines, by which the engineers are not only constantly employed while loading and discharging cargo, but these operations are accelerated to such an extent that the earnings of the boat are largely increased.

On nearly all the lines of Holland these steamers are understood to be paying well. They have increased in size from 35 feet in length to dimensions giving a capacity of 160 to 200 tons, which, however, are regarded as too large, and the tendency has recently been to return to boats carrying from 130 to 160 tons. These are 130 feet long, 16 feet beam, and draw 6 feet of water, having an ultimate capacity of 160 tons. The engines of these boats are of 25 horse-power, nominal, and their screws are 3 feet in diameter, having a pitch of 7 feet, and making 120 revolutions per minute.

In a great number of voyages, extending over a year and a half, between Rotterdam and Nymwegen, a distance of about 70 miles, these boats, towing a 70-ton barge, made a speed of 3½ miles per hour against the current. The trip was usually performed in about 14 hours, giving an average speed of 5 miles per hour. The total cost

of this performance, for wages of crew, coal, oil, waste, etc., was about $1\frac{3}{10}$ mills per ton mile.

In France, the canals are of medium size, and the carrying capacity of the boats is not greater than 150 to 160 tons.

Towing, for the most part, is done by men, though in some instances animal power is used. Within a few years, and in a few cases only, regular towing companies have been formed, and continuous service provided for. Boats towed by men make from 12 to 15 kilometres ($7\frac{1}{2}$ to $9\frac{3}{8}$ miles) in 12 hours; while boats towed by horses or mules make from 20 to 24 kilometres ($12\frac{1}{2}$ to 15 miles) in the same time. When the service is continuous, day and night, with regular relays of horses, 50 kilometres ($31\frac{1}{2}$ miles) are made in 24 hours.

In October, 1871, experiments were made upon the canal of Bourgogne, under the direction of the engineers, with a system of steam-towage patented by M. Larmanjat, of Paris, and designated "*Le system de petites locomotives et d'unrail unique.*" This system consists of a single iron rail, weighing about 12 pounds per yard, laid along the towing-path and supported at intervals of about three feet by small transverse timbers. This rail serves to guide the locomotive and to regulate the weight upon the two driving or traction-wheels which run upon the ground. The traction-wheels, which mainly support the weight of the locomotive, are placed nearly under its center of gravity; are about 3 feet in diameter, and are surrounded by a tire of caoutchouc about 3 inches in thickness, and with a face of say 12 inches. Under the forward and after ends of the locomotive are placed smaller wheels, about 15 inches in diameter, which run upon the rail. The connection between the locomotive and these wheels is such that by simply turning a screw by means of a small hand-wheel, any desired part of the weight may be taken from the traction-wheels and transferred to the smaller wheels upon the rail. The object of this provision is, to adjust the weight upon the drivers to the tractive force required. The total length of the locomotive is $12\frac{1}{2}$ feet; its width, 5 feet; its height, to top of smoke-pipe, 10 feet, and its weight about 4 tons.

In adapting this system to any canal it is proposed to divide the latter into sections of greater or less length, depending upon the extent of traffic and the number of boats in use. A locomotive is to be put upon each section, upon which it is to operate exclusively. A boat is to be towed in one direction until a locomotive is met moving in the opposite direction, when the boats in tow are exchanged, and the locomotives return to the opposite ends of their

respective sections where boats are exchanged with the locomotives of adjacent sections. When the experiments were made, although the rail had not yet been laid, the results were regarded as most satisfactory. The first boat, drawing 16 inches of water and carrying 29 tons, was easily towed at a speed of 6 kilometres ($3\frac{1}{2}$ miles) per hour. A second experiment was made upon a boat drawing 4.6 feet and carrying 129 tons, which may be taken as fairly representing the conditions of ordinary service on this canal. In this case, upon the straight levels, and where no obstacles occurred, the speed attained was 5 kilometres ($3\frac{1}{8}$ miles) per hour; but upon the shorter and more sinuous levels, the speed was reduced to 4 kilometres ($2\frac{1}{2}$ miles), and in some cases to even $3\frac{1}{2}$ kilometres ($2\frac{1}{8}$ miles) per hour. The mean time expended in passing locks was 6 minutes, being much less than the time required by other boats. No difficulty was experienced in stopping and starting, or while under way, and the engineers declared that "when the men shall have become accustomed to the machinery, boats towed by this system will be managed with as great facility as they now are."

The final conclusion of the engineers was that a speed of 4 kilometres an hour could be maintained; that $7\frac{1}{2}$ minutes was a proper allowance for the time of lockage, and that a single trip of 242 kilometres ($151\frac{1}{4}$ miles), including 191 lockages, could be made in 86 hours, at an average speed, including lockages, of $1\frac{1}{2}$ miles per hour. The report concludes as follows: "The little machine of M. Larmanjat is well adapted to the towage service; it is managed with the greatest facility, and may be stopped almost instantly upon signal from the captain of the towed boat. Its driving-wheels have wide rims, leaving no trace of their passage upon the towing-path in a dry time; they should be provided with a thick band or tire of caoutchouc (they were not thus provided during the experiments) in order to reduce the pressure upon, and consequently the abrasion of, the towing-path during wet weather. The requisite tractive power for towing a boat may be obtained with a reduction of one-fourth in the weight, or to 3 tons. The motor, therefore, fills all the desirable conditions." The report of the engineers was approved, and its recommendations concurred in by the engineer-in-chief of the canal, and by the Inspector-General of Public Works.

A concession has been asked by M. Larmanjat for the exclusive use of this device upon the canal of Bourgogne for 50 years.

The proposed charges for towing vary with the distance and with the class of merchandise carried by the boats which may be towed.

From 0 to 100 kilometres, from 100 to 150 kilometres, from 150 to 200 kilometres, and from 200 to 242 kilometres, the proposed charges vary from 0.012 to 0.008 of a franc, per ton kilometre ($3\frac{61}{100}$ to $2\frac{41}{100}$ mills per ton mile), for merchandise of the first class, and from 0.006 to 0.004 of a franc, per ton kilometre ($1\frac{81}{100}$ to $1\frac{2}{100}$ mills per ton mile), for merchandise of the second class. "These rates," says the Inspector-General, "are equal to the present cost of towing, by animal power for the two classes of merchandise upon the canal of Bourgogne."

The lower rates for merchandise of the second class, it will be observed, are almost precisely equal to the charge upon the Erie canal; the latter being, at 35 cents per mile for 230 tons, $1\frac{52}{100}$ mills per ton mile, and the mean of the former $1\frac{505}{1000}$ mills. If, however, we take the actual cost of towing 230 tons, at 27.4 cents per mile, the rate per ton mile is $1\frac{12}{100}$ mills, or about 21 per cent less than the mean cost upon the Bourgogne canal.

From a recent report upon the internal navigation of France, prepared by M. Kranz, chief-engineer in the service of the Seine navigation, it appears that upon the 3,270 miles of French canals the average annual ton mileage is 841,847,830, and that the net cost of transport, exclusive of tolls, is $4\frac{2}{100}$ mills per ton mile. M. Larmanjat estimates that by the adoption of his device the capacity of the canal will be doubled, and that the cost of transport will be materially diminished.

COST OF RAILROAD TRANSPORTATION.

In order to show how far railroads may be able to compete with the Erie canal, in the transportation of such freights as would naturally seek the latter, and to ascertain to what extent the canal may be expected to retain or to increase its present large tonnage by reason of improved and more economical modes of transport, the following investigations have been undertaken:

The cost of freight movement by rail depends principally upon three elements:

1. Upon the number of net tons that may be hauled by a single locomotive at the ordinary speed of freight trains.
2. Upon the number of trains which may be run in a given time.
3. Upon the cost per train mile, including interest, maintenance, operating expenses, etc.

The number of tons hauled per train will depend upon the weight of the locomotive and upon the ruling grade in the direction of the maximum movement. The experience upon our principal railroads

shows that with locomotives weighing 70,000 pounds—50,000 pounds being on the drivers—the tractive force, which may be depended upon in all conditions of the rail, is about 10,500 pounds. The number of tons, including engine and tender, which such a locomotive can be depended upon to haul upon any grade, is given by the following formula :

$$\text{Load} = \frac{0.21\ W}{9.2 + 0.38\ i} \text{ Gross tons ;}$$

in which *W* = Weight in pounds upon the drivers.
i = Grade in feet per mile.

The following table has been constructed by the use of this formula. In it the weight of the locomotive and tender, with fuel and water, is taken at 58 tons ; and the effective load of a single car at about 10 tons.

GRADE—FEET PER MILE.	LOADS HAULED PER TRAIN.		
	Gross tons.	Net tons.	No. cars.
Level	1,141	540	54
10	808	375	37
20	625	282	28
30	510	236	23
40	430	186	19
50 ..	372	157	16
60	328	135	14
70	283	117.5	12
80	245	103.5	10
90 ..	212	92	9
100	188	82.5	8

The weight of a car has been taken at ten tons ; in fact, however, it is probably somewhat less ; but the effect of curvature has been neglected, it being assumed that this, if not excessive, would practically offset the slight error resulting from the assumption that the average weight of a freight car is ten tons.

The number of trains which may be run per day, or as to the practicable limit of time between trains, will depend largely upon the facilities for loading, dispatching and unloading at termini. Taking the New York Central and Hudson River as a representative road, having first-class facilities for handling and transporting freight, we deduce from its annual report for 1871 the following :

Tons moved one mile	888,327,865
Train miles (freight)	6,986,107
Average number of tons per train	127

Taking the eastward movement at double the westward, we have—

Average tons per train, east	169. $\frac{1}{8}$
Average tons per train, west.....	84. $\frac{3}{8}$
Ton miles per day (313 days)	2,838,108
Tons over the road per day (500 miles).....	5,676
Trains over the road per day (each way).....	22
Average interval between trains, minutes.....	65+

The train mileage of passenger trains is reported to have been, for the same year, $\frac{1}{4}$ of that for freight trains. Taking both, then, the average daily number of trains each way was, say 36, and the average interval between trains moving in the same direction, 40 minutes. Much delay is, of course, caused to freight trains by the necessity of keeping out of the way of passenger trains, and in waiting for them to pass; this delay would, however, be avoided on a road used exclusively for freight purposes, and, on such roads, it may perhaps be safely assumed that trains may be run at intervals of 20 minutes. This, taking the western movement at one-half the eastern, would give a ton mileage about $5\frac{1}{2}$ times as great as that of the Central road for the year 1871—provided so much could be secured to the road. The cost, per train mile, is made up of four principal elements, as follows:

1. Interest on cost of road and equipment.
2. Maintenance of road and equipment.
3. Repairs of cars and machinery.
4. Operating expenses.

How, and to what extent, will the cost of movement be affected by an increase in ton mileage?

The interest upon the cost of road, simply, being practically constant, the rate per train mile will vary inversely as the number of train miles; but, since the cost of equipment will necessarily be increased with the tonnage, the total rate of the first element of cost, while it will be diminished, will not be diminished to the same extent that the tonnage is increased. It will not be safe to estimate a reduction of more than $\frac{1}{3}$ in this element, for an increase to five times the present tonnage. The expense of maintenance may be assumed to vary, within the limits considered, with the amount of business done, and hence the rate per train mile may be regarded as constant. The expense of repairs to cars and machinery, and the operating expenses, may also be regarded as varying with the business done, and the rate per train mile may be considered as constant.

The following table, showing the several elements of cost and the

total cost per train mile on several prominent roads, is made up from the annual reports of the operations of the several roads for the years 1869 and 1871.

NAME OF ROAD.	Year.	COST PER TRAIN MILE.				
		Fuel, cents.	Main-tenance.	Repairs of machinery.	Operating.	Total.
New York Central	1869	21½	\$0 69	\$0 35	\$0 72	\$1 76
Erie	1869	10	84	23	70	1 27
Northern Central	1871	12	21	34	55	1 10
Pennsylvania Central	1871	6.6	30	18	47	95
Philadelphia, Wilmington and Baltimore,	1871	9	31	42	71	1 44
Philadelphia and Reading	1871	6	39	47	90	1 76
Albany and Susquehanna.	1869	21	45	16	86	1 47
Buffalo and Erie	1869	10½	23	14	54	91
Hudson River	1869	17	90	23	1 01	2 14
Rensselaer and Saratoga	1869	31	83	36	87	2 06
Troy and Boston	1869	36	83	33	1 14	2 30
Rome, Watertown and Ogdensburgh	1869	22	77	12	1 10	1 99
New York Central and Hudson River	1871	16	44	23	62	1 29
Total .....	....	...	\$6 69	\$3 56	\$10 19	\$20 44
Means .....	....	16.8	\$0 51.5	\$0 27.4	\$0 78.4	\$1 57.3

The cost of fuel is included in the operating expenses. If these lines be separated into two classes, the one embracing those which may be regarded as east and west trunk lines, or parts of such lines, having moderate grades and doing a large through freight business, and the other embracing those lines which have steeper grades, and upon which the business is smaller and more of a local character, we get the following:

1. *Trunk Lines having Moderate Grades.*

NAME OF ROAD.	Year.	COST PER TRAIN MILE.				
		Fuel, cents.	Main-tenance.	Repairs of machinery.	Operating.	Total.
New York Central	1869	21½	\$0 69	\$0 35	\$0 72	\$1 76
Hudson River	1869	17	90	23	1 01	2 14
New York Central and Hudson River	1871	16	44	23	62	1 29
Erie	1869	10	34	23	70	1 27
Pennsylvania Central	1871	6.6	30	18	47	95
Buffalo and Erie	1869	10½	23	14	54	91
Totals .....	....	81.6	\$2 90	\$1 36	\$4 06	\$8 32
Means .....	....	13.6	\$0 48½	\$0 22½	\$0 67½	\$1 38½

2. *Local Lines having steeper grades or doing less business.*

NAME OF ROAD.	Year.	COST PER TRAIN MILE.				
		Fuel, cents.	Main- tenance.	Repairs of machinery.	Operating.	Total.
Northern Central	1871	12	\$0 21	\$0 84	\$0 55	\$1 10
Philadelphia and Reading.....	1871	6	89	47	90	1 76
Rensselaer and Saratoga.....	1869	81	83	86	87	2 06
Troy and Boston.	1869	86	83	38	1 14	2 30
Rome, Watertown and Ogdensburgh ...	1869	22	77	12	1 10	1 99
Philadelphia, Wilmington and Baltimore,	1871	9	81	42	71	1 44
Totals .....	....	116	\$3 84	\$2 04	\$5 27	\$10 65
Means .....	....	19½	\$0 55½	\$0 34	\$0 87½	\$1 77½

Taking one of the lines of the first class, having, like the New York Central, ruling grades of about 20 feet in the direction of the maximum movement and assuming the number of loaded cars at twenty-eight per train, we have, for the maximum load hauled per train, 280 tons. But the fluctuation in the quantity of freight seeking movement, will not warrant the assumption that all trains will run with full loads; 240 tons may, perhaps, be taken safely as the average load east, and one-half that sum, or 120 tons, for the average load west, making the average for both directions 180 tons, or 53 tons more than the average of the New York Central and Hudson River for 1871. The cost of moving this average load, for maintenance, repairs of machinery and for operating expenses, will then be \$1.38½ per mile, or at the rate of $\frac{1.38567}{180} = 7.704$ mills per ton mile.

The total cost of the roads embraced in the first class, together with their equipments up to and including the year 1869, is reported to have been \$164,270,747; the annual interest upon which at 7 per cent is \$11,498,952.29. The aggregate ton mileage of the same roads for 1869 was not far from 2,500 millions. The cost per ton mile to cover interest for that year was, therefore, $\frac{11.49895229}{2500} = 4.599$ mills. Adding this last result to the sum of the costs of the other three items, we have finally for the total cost per ton mile, upon the basis of the business of 1869, 12.296 mills.

If, however, a ton mileage of five times as great be provided for, and only one-third the cost for interest just found, or $\frac{4.599}{3} = 1.531$ mills be added to the sum of the costs for maintenance, repairs and operating, we have as the total minimum probable cost of transportation by rail, $7.704 + 1.531 = 9.235$ mills per ton mile.

Upon the Pennsylvania Central the cost of transportation, exclu-

sive of interest for the year 1871, was $8\frac{74}{100}$ mills per ton mile, while the charge was $13\frac{57}{100}$ mills. If we add our estimated rate for interest ($4\frac{592}{1000}$ mills) to the actual cost for maintenance, repairs and operating, we get for the total cost of movement, $8.74 + 4.592 = 13\frac{332}{1000}$ mills or $1\frac{78}{100}$ per cent less than the charge.* This road, which is $344\frac{2}{10}$ miles in length, had in 1871 a ton mileage of something over one thousand millions, while the New York Central and Hudson River, between Buffalo and New York, say 500 miles, had only eight hundred and ninety millions. It appears, therefore, that the ton mileage per mile of the former was $1\frac{6}{10}$ times as great as that of the latter. Again, the cost of fuel, which was $21\frac{1}{2}$ cents per train mile on the New York Central in 1869, was only $6\frac{6}{10}$ cents on the Pennsylvania Central in 1871, showing a difference of over 69 per cent in favor of the latter. Comparing the cost of fuel on the Pennsylvania Central with the average used in our estimate, the difference is nearly 54 per cent in favor of the Pennsylvania Central. Finally, much of the freight business of the Pennsylvania Central consisted in the transportation of coal, in which the per centage of net load is much larger, than in the transportation of freight other than coal. This road, then, with its unusual advantages for cheap transportation, such as cheap fuel and a tolerably uniform and very heavy traffic, may be taken as an example indicating:

1. To what extent the cost of transportation by rail may be reduced below the present average cost.

2. To what extent our estimate, for a maximum ton mileage on roads employed exclusively in freight movement, may be relied upon, and,

3. How far railroads, under the most favorable circumstances, may be expected to compete with the Erie canal in the transportation of such freights as naturally seek the latter, or may be attracted to it by an increase in speed and by diminished cost.

At $9\frac{335}{1000}$ mills per ton mile, the cost of transporting a bushel of wheat from Buffalo to New York—say 500 miles—will be $13\frac{65}{100}$ cents; while from Chicago to New York, calling the distance 1,000 miles, the cost will be $27\frac{7}{10}$ cents.

I am aware that, during the past year, an estimate has been made, upon the authority of which it has been asserted that grain may be transported by rail 1,000 miles at a total cost of about 6 cents per bushel. In regard to this statement, it is sufficient to remark that the

* The average charge per ton mile on all freight carried upon the Lake Shore and Michigan Southern Railway was: 1870, 1.5 cents; 1871, 1.89 cents.

sum stated would, perhaps, barely cover the cost of fuel and pay the interest upon the cost of the road and its equipment.

The following summary of the results of our estimates shows the costs of freight movement by the several modes examined, exclusive of tolls on the canal :

SUMMARY OF RESULTS.

MODE OF TRANSPORTATION.	TOTAL COST.		Per cent.
	Per ton mile.	Per bushel wheat, Buffalo to N. Y.	
	mills.	cents.	
By railroad.....	9.235	13.85	100
By Erie canal and Hudson river, with animal power on canal,	5.089	8	57.76
By Erie canal and Hudson river, with steam power on both.	2.68	3.964	28.04

If we add tolls on the canals at the present rates the costs will stand as follows :

MODE OF TRANSPORTATION.	TOTAL COST.		Per cent.
	Per ton mile.	Per bushel wheat, Buffalo to N. Y.	
	mills.	cents.	
By railroad.....	9.235	13.85	100
By Erie canal and Hudson river, with animal power on canal,	6.89	9.23	66.64
By Erie canal and Hudson river, with steam power on both..	4.018	6.207	44.82

CONCLUSION.

The foregoing deductions from the results of the trials made during the past year, and the careful estimates which have been made of the present cost of transportation on the canal and upon railroads, together with the results attained upon foreign canals, seem to justify the following conclusions :

- 1. That the practicability of substituting steam for animal power on the canal is substantially demonstrated.
- 2. That an average speed of three miles an hour, including lockages, may be attained.
- 3. That by the substitution of steam the tonnage of the canal may be very largely increased.
- 4. That an ultimate saving of 50 per cent, under the conditions previously stated, may be effected in the cost of transportation, exclusive of tolls.

5. That, all things considered, the cheapest and most convenient mode of employing steam is in boats carrying their own machinery and 200 tons of cargo.

6. That as to the power required, and its cost in fuel, the estimate given in the report of 1871 is reasonably correct.

In order, however, that the fullest measure of success may attend the introduction of steam, it is imperatively necessary that the full depth of seven feet of water be at all times maintained during the season of navigation.

The accumulations in the bottom of the canals, together with the bench walls, should be removed.

The locks should be more efficiently manned, in order to reduce the detention at locks to the lowest practicable limit.

The locks themselves are, it is believed, large enough to pass boats as large as should be permitted to pass through the prism of the canal.

With the improvements suggested, and the introduction of steam, the canal will be rendered fully capable of transporting not only the present tonnage, but all the freight that may reasonably be expected to seek it or be attracted to it for many years.

Respectfully submitted.

D. M. GREENE,
Engineer.

TRoy, *February 18th, 1873.*

APPENDIX.

In order to make a complete record of what has been done since the passage of the law, and for the purpose of supplying information upon questions relating thereto, it has been deemed advisable to append a copy of the law, together with the substance of the reports of the Commission and of the engineer, made last year.

CHAPTER 868, LAWS OF 1871.

AN ACT to foster and develop the internal commerce of the State by inviting and rewarding the practical and profitable introduction upon the canals of steam, caloric, electricity, or any motor other than animal power for the propulsion of boats.

PASSED April 28, 1871; three-fifths being present.

The People of the State of New York, represented in Senate and Assembly, do enact as follows:

SECTION 1. GEORGE B. McCLELLAN, HORATIO SEYMOUR, ERASTUS S. PROSSER, DAVID DOWS, GEORGE GEDDES, VAN R. RICHMOND, WILLIS S. NELSON, GEORGE W. CHAPMAN, WILLIAM W. WRIGHT and JOHN D. FAY are hereby appointed a commission to practically test and examine inventions, or any and all devices which may be submitted to them for that purpose, by which steam, caloric, electricity, or any other motor than animal power may be practically and profitably used and applied in the propulsion of boats upon the canals; said examination and tests shall be had by the said commissioners at such time or times during the season of canal navigation, for the years 1871 and 1872, as they may order and direct; said commissioners shall have the right.

and they are hereby expressly required to reject all such inventions or devices, if in their opinion none of the said inventions or devices shall fully and satisfactorily meet the requirements of this act; but said commissioners shall demand and require: *First.* The inventions or devices to be tested and tried at their own proper costs and charges of the parties offering the same for trial. *Second.* That the boat shall, in addition to the weight of the machinery and fuel reasonably necessary for the propulsion of said boat, be enabled to transport, and shall actually transport on the Erie canal, on a test or trial exhibition, under the rules and regulations now governing the boats navigating the canals, at least 200 tons of cargo. *Third.* That the rate of speed made by said boat shall not be less than an average of three miles per hour, without injury to the canals or their structures. *Fourth.* That the boat can be readily and easily stopped or backed by the use and power of its own machinery. *Fifth.* That the simplicity, economy and durability of the invention or device must be elements of its worth and usefulness. *Sixth.* That the invention, device or improvement can be readily adapted to the present canal boats; and, lastly, that the commissioners shall be fully satisfied that the invention or device will lessen the cost of canal transportation, and increase the capacity of the canals. Any means of propulsion or towage other than by a direct application of power upon the boat, which does not interfere in any manner with the present method of towage on the canals, and complying in all respects with the provisions of this act, may be entitled to the benefits thereof; but this shall not be construed to apply to the system known as the Belgian system, or to any mode of propulsion by steam engines or otherwise upon either bank of the canals.

§ 2. No such test shall be made if the same shall in any manner retard, hinder or delay the passage of boats navigating the canals under the present system.

§ 3. If the commissioners herein appointed shall, upon such examination and test as is provided for in the first section of this act, conclude and determine at any time that one or more inventions or devices as aforesaid, but not to exceed three in number, shall be in all respects a full and satisfactory, practicable and profitable adaptation to the wants of the canals by reason of a new, useful and economical means of propulsion for boats within the meaning of this act, it shall then, and not otherwise, be their duty to grant unto the owner or owners of such inventions or devices, his or their attorney, their certificate or certificates, under their hands as such commissioners, that they have so determined and adjudged to the owner or owners of the invention or device which, in the judgment of the said commissioners, possesses in the greatest degree of perfection the requisites mentioned in the first section, they shall grant a certificate which shall be known as certificate number one, and to the owner or owners of the next best invention or device, they shall grant a certificate as aforesaid, which shall be known as certificate number two; and to the owner or owners of the third best invention or device, they shall grant a certificate as aforesaid, which shall be known as certificate number three.

§ 4. Before entering upon the duties of his office each of the commissioners herein named shall take and subscribe an official oath, which shall be filed at once in the office of the Secretary of State. Any vacancy arising from any cause in said commission, may be filled on the application of the remaining commissioners, by the Governor.

§ 5. The reasonable expenses of the said commission, not exceeding in all the sum of \$5,000 to be determined by the said board, shall be paid out of any sum which may be awarded to the person or persons receiving the certificate mentioned in the third section of this act, in proportion to the amount awarded to the holders of said certificates, providing such certificates shall be granted; and if no such certificate shall be granted, then the same shall be paid by the Treasurer, on the warrant of the Comptroller out of any moneys in the treasury not otherwise appropriated.

§ 6. Upon the production by the owner or owners, or his or their attorney, of such certificate or certificates as may be granted under the provisions of this act, to the Comptroller, he shall draw his warrant upon the Treasurer of the State of New York for the sum of \$50,000, payable to the said owner or owners of said invention, device, his or their attorney, out of any money in the treasury not otherwise appropriated; in case but one certificate, shall have been granted by said commissioners. If two certificates shall have been granted and no more, then the said Comptroller shall draw his said warrant upon the said Treasurer for the sum of \$35,000, payable to the owner or owners of certificate number one; and said Comptroller shall also draw his said warrant upon the said Treasurer for the sum of \$15,000, payable to the owner or owners of certificate number two. If three certificates shall be granted by said commissioners, then and in that case the said Comptroller shall draw his said warrant upon the said Treasurer for the sum of \$30,000, payable to the owner or owners of certificate number one; and one of \$15,000, payable to the owner or owners of certificate number two; and one of \$5,000, payable to the owner or owners of certificate number three.

§ 7. If on or before the 1st day of November, 1873, the commissioners hereinbefore named shall, upon due examination, find and determine that the said invention or device, has been successfully operated upon the canals, and has been or will be largely adopted as a motor on said canals by reason of its superiority over any other known method of propulsion, then and in such case they shall grant a further certificate of that fact, and the Comptroller upon its presentation to him, shall draw his warrant upon the Treasurer of the State for the further sum of \$50,000, payable to the said owner or owners of the said device, his or their attorney, out of any money in the treasury not otherwise appropriated; but in case of the granting by said commissioners of more than one certificate, as stated in section six of this act, then and in that case the sum of \$50,000, mentioned in this section, shall be divided among and paid to the owners of the said certificates in the proportion, and in the manner as stated in section six of this act.

FROM THE REPORT OF THE COMMISSION MADE FEBRUARY 14, 1872.

The Commissioners appointed by chapter 868 of the Laws of 1871, met at the office of the State Engineer and Surveyor, at Albany, on the 10th day of July, 1871, and were duly sworn into office, and entered upon the duties assigned to them by the Legislature, and of their action since that time, beg leave to make the following

REPORT :

The Commission was organized by the election of Van R. Richmond, chairman. Henry A. Petrie, of Albany, was appointed secretary, and David M. Greene, of Troy, civil and mechanical engineer, was appointed engineer to aid the Commission in making the examination and tests provided for in the act.

The Hon. Horatio Seymour having declined to serve, the remaining Commissioners, as provided by the third section of the law, applied to the Governor to fill up the commission, and the Governor, thereupon, appointed Daniel Crouse, of Utica, to fill the vacancy.

The following resolutions were adopted :

Resolved, That for the purpose of carrying out the intent of the law, this Commission will require, among the tests to be made, that the several competitors shall make not less than three round trips, from New York and Buffalo or Oswego; each boat to be loaded with not less than 200 tons of cargo each way; the trips to be commenced as soon as any party is ready, and all completed in the least practicable time. For the purpose of determining the time consumed by each and all the trips, the clearance must show the day of the month and time of day that the boat passes each collector's office; certified copies thereof to be furnished to the Commission. In order to obtain information in regard to the practical working of the several devices in competition, as soon as practicable, the engineer of the commission, Mr. David M. Greene, of Troy, will inspect the same from time to time, as in his judgment may be necessary, and report the facts obtained to this Commission.

Resolved, That competitors are hereby notified that for the purpose of carrying out the intent of the law, that though it is desirable that the three consecutive round trips from Buffalo or Oswego to New York be made at the earliest time practicable, that the whole of the year 1872 will be allowed to such persons as may desire so much time, and that the awards will not be made until the close of navigation in that year.

Resolved, That a copy of the foregoing resolutions and of the law be furnished by the secretary to all persons who may desire to compete under it, and that on Monday, the 14th day of August, 1871, at three o'clock, P. M., the Commission will meet at the office of the Canal Commissioner, in Syracuse, for the purpose of transacting any business that may properly come before them.

On the 14th day of August, 1871, pursuant to adjournment, the Commission met at the office of the Canal Commissioner, in the city of Syracuse.

A large number of inventors, with drawings and models, appeared before the Commission and made full statements and explanations of their various plans. Several questions regarding the intent and meaning of the law were raised, which were submitted to the Attorney-General for his opinion.

An impression seemed to be almost universal among the inventors that the great difficulty to be overcome in navigating the canals by loaded boats with steam power, at the rate of three miles an hour, was the injury done to the banks by the swell created by the boat and machinery. Having this impression, most of the attempts of inventors were directed to some new wheel or model of a boat. The Commissioners being unanimously of the opinion that this impression of the inventors was based on mistaken views of the difficulties really to be overcome, adopted a resolution, which appears in the proceedings hereinafter given, hoping thereby to prevent further waste of time and money to obviate an imaginary difficulty.

The following are the resolutions adopted at the meeting heretofore referred to :

Resolved, That the Attorney-General be requested to favor this commission with his opinion on the following points, viz.:

"1st. Would it be within the intent of the law (chapter 868, Laws of 1871) to allow competition by boats that do not carry, 'in addition to the weight of the machinery and fuel necessary for the propulsion of said boats,' 200 tons of cargo, that is in part or wholly carried on boats towed by the one on which is placed the machinery? Or, in other words, can tug-boats drawing one or more freight-boats, or boats in sections, compete under the law? The *second* requirement of the first section, in plain words, cuts off such tug-boats drawing freight-boats, but the point has been raised that another clause of the same section alters this *second* provision. The clause referred to is: 'Any means of propulsion or towage other than by a direct application of power upon the boat, which does not interfere in any manner with the present method of towage on the canals, and complying in all other respects with the provisions of this act, may be entitled to the benefits thereof.'

"2d. Does the word 'new,' in the third section of the law, occurring in the connection hereinafter given, require that the device should be something not before known or tried, or may it be sufficient to make some old or known device successful?

"§ 3. If the Commissioners herein appointed shall, upon such examination and test as is provided for in the first section of this act, conclude and determine at any time that one or more inventions or

devices as aforesaid, but not to exceed three in number, shall be, in all respects, a full and satisfactory, practical and profitable adaptation to the wants of the canals, by reason of a *new*, useful and economical means of propulsion for boats, within the meaning of this act." * *

To which the Attorney-General replied as follows:

"STATE OF NEW YORK:

"OFFICE OF THE ATTORNEY-GENERAL, }
ALBANY, *September 6, 1871.* }

"HON. VAN R. RICHMOND, *Chairman, etc.* :

"DEAR SIR.—In answer to a resolution adopted by your honorable board of the date of August 14th, ult., which has been submitted to me,

"I respectfully report that, after a careful examination of the act and a comparison of its several provisions, I am of opinion that the motive power, contemplated by it to be applied to the propulsion of boats, may be applied upon a boat other than the one which carries the cargo, and that tug-boats propelled by steam or other motive power specified in the act, may be made competitors for the prize under the act.

"The universal and fundamental rule for the construction of all statutes is, that the several provisions must be harmonized and given their full effect, so as effectually to carry out the scheme or purpose intended.

"The concluding paragraph of section one is as follows: 'Any means of propulsion or towage other than by a direct application of power upon the boat, which does not interfere in any manner with the present method of towage on the canals, and complying in all other respects with the provisions of this act, may be entitled to the benefits thereof; but this shall not be construed to apply to the system known as the Belgian system, or to any mode of propulsion by steam engines or otherwise upon either bank of the canals.'

"This provision expressly authorizes your Commission to accept any means of propulsion or towage other than by a direct application of power upon the boat, provided such means of propulsion does not interfere with the present method of towage upon the canals, and must be held to modify the other provisions of the act by which such means of propulsion or towage are excluded. This construction is very much strengthened by the concluding paragraph of the portion of the section quoted, which excludes the system known as the Belgian system and any mode of propulsion by steam engines or otherwise upon either bank of the canals.

"The exclusion, by the express terms of the section in its last paragraph, of these two modes of propulsion from your consideration, furnishes strong evidence that it was the intention of the Legislature to include all other modes of propulsion by steam, caloric, electricity or any other motor than animal power.

"The word 'new' in the third section, in my opinion, is satisfied

by the application of the power intended by the act as a useful and economical means of propulsion of boats upon the canals, although such power was before applied to other uses. In its application to this purpose, within the provisions of the act, if successful and useful, it would be *new* in the sense intended by the scope and spirit of the act.

“Respectfully yours,

“MARSHALL B. CHAMPLAIN,

“*Attorney-General.*”

The following resolution was also adopted :

“*Resolved*, That the experiments heretofore made in navigating the canals by freight-boats propelled by steam have not been failures by reason of injury done the banks of the canals by the swell caused either by the motion of the boat or the wheels through the water ; and that, in the judgment of this Commission, there is no practical difficulty in navigating the canals by boats carrying 200 tons of cargo, at the rate of three miles per hour, that arises from ‘injury to the canals or their structures.’ The main difficulty to be overcome is to establish the economy of steam or other motor as compared with animal power.”

The Commission then went on board the steamer “Andrew H. H. Dawson,” of New York, which was on its way to Buffalo with a cargo of coal, and examined the wheel, machinery, etc. ; after which the Commission adjourned to meet on the call of the chairman.

* * * * *

The anxiety of the inventors to secure the money offered by the State is such that a large number of devices, we are informed, are now in the course of construction ; and there is every reason to expect that during the coming season many more boats will attempt the trial trips required by this Commission. Some of the inventors express great confidence in success, while others insist that the law should be amended in such a way as to be more favorable to their particular schemes.

This Commission does not advise any change in the law of the kind desired by such persons as think its objects cannot be secured as it now stands, and is construed by the Attorney-General. On the contrary, we think all the things now required by the law should be insisted upon being complied with before the money should be awarded.

All the time allowed by the law will be given to the competitors, but the Commission will adhere to the determination expressed at its first meeting, that boats in actual service, and not drawings or models, will be considered as competing for the money offered by the State.

Appended hereto will be found the report of David M. Greene, engineer of the commission, giving his views on the whole subject. As an officer of naval engineers in the United States service, Mr. Greene has enjoyed unusual facilities for becoming acquainted with the design and construction of steam machinery, and with its manipulations both ashore and afloat. He expresses the opinion, based on the knowledge he has acquired from actual examinations of the workings of various plans and devices, that the objects of the law may be attained in a canal of the depth and width that our canals are, by law, supposed to be. We invite attention of all parties interested to Mr. Greene's report.

REPORT OF DAVID M. GREENE, ENGINEER OF THE COMMISSION.

HON. VAN R. RICHMOND, *Chairman, etc.*:

SIR.—Having been directed by the Commission appointed under act chapter 868, Laws of 1871, “To foster and develop the internal commerce of the State,” etc., to report the results of my investigations and observations, together with my present views in relation to the introduction of steam as a motive power upon the canals of this State, I have the honor to submit the following

REPORT:

In the performance of this duty, I cannot, perhaps, do better than to present to the Commission a brief history of my connection with this important problem; the board will then be better able to understand and appreciate the views which I may express in relation to the present status of the problem, with the attempts at the solution of which it has to deal.

In the summer of 1867, while on duty as an officer of naval engineers, in the bureau of engineering of the Navy Department at Washington, Mr. S. H. Sweet, late deputy State Engineer, called my attention to the importance of the economical introduction of steam, as a motive power, on the canals; informing me of the fact that several unsuccessful attempts had then been made, and requesting me to undertake an investigation of the question, with the view, if possible, of discovering the cause or causes of the failures.

Accordingly, I proceeded, with such information as I was able to procure at the time, to make such investigations as the question seemed to require. As the result of those investigations I reached the following conclusions:

First. That the washing of the banks was an *imaginary* difficulty, which had been anticipated, from the fact that the old packets, when towed at high speeds, produced injurious swells; or that if these swells and the resulting injury to the banks, existed as a matter of fact, being produced by the steam propelled freight boats, drawing six feet of water, they must have been produced by an attempt to attain a rate of speed by far too great for economy. The obvious remedy was to reduce the speed.

Second. That an average rate of speed of about three miles per hour could, probably, be economically maintained; and,

Third. That it was quite probable that the machinery which had been used, was not properly adapted to the duty required of it; that it was not properly designed and proportioned to develop power economically; and that, to insure success, it was absolutely necessary that the machinery should be specially designed for the particular duty in question; the special requisites being simplicity, compactness, strength, durability and a proper relation between its several elements.

A simple, though not rigorously exact, computation will show how groundless are the fears that injurious waves, or washing of the banks, will result from the attainment of the desired speed.

The distance from Buffalo to West Troy is 345 miles; and in that distance there are seventy-two locks. Allowing ten minutes for the time of lockage and detention from other causes, the time expended at the locks must be 720 minutes or twelve hours. An average speed of three miles per hour would accomplish the trip from Buffalo to West Troy in 115 hours. Deducting the time lost at the locks, there remains $115 - 12 = 103$ hours as running time; which would necessitate a speed, between locks, of 3.35, say 3.5 miles per hour; or 5.11 feet per second.

The boat, in moving over a space equal to its own length, displaces a definite volume of water, which finds its way astern on either side of and underneath the boat, in virtue of a current induced by an elevation of the water at the bow, and a corresponding depression toward the stern.

To show what inclination of the surface, resulting from the elevation and depression mentioned, will suffice to cause the water to move astern as fast as the boat moves ahead, I assume the case to be similar to that of water flowing in an open canal; and, so far as our present purpose is concerned, subject to the same treatment.

Assuming the depth of the water to be seven feet (and it is to be observed here that the competitors, under the act, have the right to expect that this depth will be maintained throughout the canal), the width of the boat 17.5 feet, the draught of water six feet, and the width of the canal, at top and bottom, seventy feet and fifty-six feet, respectively, the wetted perimeter of the canal, including that of the boat, will be 105.3 feet, and the transverse section, exclusive of the boat section, 336 square feet.

Then, using a modification of Eytelwein's formula, for the motion of water in canals, we find that the requisite current will be induced by a surface inclination of considerably less than one inch in the length of a boat.

The process by which we arrive at this result, while not assuming to indicate or measure the precise effect of the moving boat, upon the water ahead of it, nevertheless shows, that there is no difficulty in disposing of the displaced water.

The waves generated by the old packets are readily accounted for, when we consider that the speed attained was nearly, if not quite, double that now contemplated; that there is a great disparity between the sections of the new and old canals; and that, in the case of the packets, the disturbance was limited, almost exclusively, to the *surface* of the canal, instead of extending to within a foot of the bottom, as in the case of a loaded boat of the present day.

In regard to the power required to propel a boat laden with 200 tons of cargo, we have, as a datum, the fact that two horses, with extra exertion, such as is required to develop *two standard horse-power*, maintain a speed between locks, of about two miles per hour.

In case the same speed were obtained by steam-power, an excess of, say fifty per cent, in effective power, must be provided to cover the loss due to the "slip" of the propelling instrument. The "slip" should of course be much less than this, but it will not be prudent to provide for a loss less than the amount stated. This provides for a loss, due to "slip," of $33\frac{1}{3}$ per cent of the effective power of the engine. Again, a further excess must be provided to cover the loss from friction, etc., of the machinery itself. So that it will be entirely safe to say, that a steam power of nearly or quite 3.5 horses, must be provided, in order to accomplish the speed attained by two *horses*. Then, to cover contingencies, let us provide for a maximum speed of four miles per hour.

The gross power to be provided will then be $3.5 \times \frac{4}{3} = 28$ horses, which is, in my opinion, a very liberal estimate.

Putting the consumption of coal at five pounds per horse-power per hour—properly designed and constructed machinery ought not to require more—the daily consumption of fuel will be $5 \times 28 \times 24 = 3,360$ pounds, say $1\frac{1}{2}$ tons.

If now an average speed of three miles be attained, the distance made in twenty-four hours will be seventy-two miles, at a cost for coal, of say \$10, or at the rate of 13.9 cents per mile.

To accomplish the same distance, the horse boat, at an average speed of 1.5 miles per hour, would require forty-eight hours, at a cost for towing of $72 \times 35 = \$25.20$. The average speed of the horse-boat 1.5 miles, and the cost of towing thirty-five cents per mile, are both believed to be fair estimates.

Assuming now that the crew of the steamer is twice as expensive as that of the horse-boat, the cost of crew per mile, or per trip (neglecting the time for loading and unloading at termini), will be the same, in each case, and the difference in expense per trip will be that due to the cost of power alone. For 345 miles at thirty-five cents per mile, the expense of towing would be \$120.75 by horse-power, while for steam-power, at 13.9 cents per mile, the cost would be \$47.96, showing a difference of \$72.79 in favor of steam-power, aside from the ability of the steamer to make nearly twice as many trips in a season as the horse-boat can make.

In other words, if our assumption be correct, twice the amount of freight could be transported, at an aggregate cost less than that now incurred with animal power as a motor.

There are, of course, numerous other elements which should enter into the comparison, and, which would, to some extent, modify the result.

Enough, however, has been said, to indicate the grounds for the conclusion that a speed of three miles per hour can be attained, economically, on our canals, by the introduction of properly designed and constructed steam machinery. It may be stated, too, in this connection, that the time required for loading and discharging many kinds of freight, would be considerably shortened by the use of suitable steam-power for that purpose. It is to be remembered too, that we have assumed that the water in the canals will be maintained at a depth of seven feet, as a minimum. The fulfillment of this condition, I consider essential to the success of the scheme.

In regard to the third conclusion, it may be said, that the proper proportions of boilers do not appear to have received that attention which their importance demands. The secret of success, in steam machinery, lies in the boiler, where the power is *generated*, rather than in the engine, which is simply the medium through which such power is transmitted and applied. In order to insure success, therefore, it is of the utmost importance that the relations between the various elements of the boiler shall be such, that it will generate the largest practicable amount of steam with a given consumption of fuel; a condition of things only to be realized by those acquainted with the actual performances of boilers of the various types and proportions now and heretofore in use.

The engine must be large enough, and yet not so large as, with its boiler, to occupy too much space, and thus unnecessarily reduce the space available for the storage of cargo.

If the engine and boiler be too large, and be worked up to their full capacity, a rate of speed may be attained, at which the cost of power would reach, and possibly exceed the cost of horse towage; while the increase in speed would be trifling, when compared with the increase in power, and in its cost. At the same time the carrying capacity of the boat would be reduced. In other words, any increase in speed, beyond that which may be most economical, operates prejudicially in the two directions of increased expense, and diminished capacity.

I have thus endeavored to point out some of the reasons which led to the conclusions heretofore stated, and which still lead me to believe that the object sought may be accomplished, provided that the canals are kept in proper condition, as to depth of water, during the trials to be conducted by the Commission during the coming season.

Should any difficulty be experienced in maintaining the full depth of seven feet, and should the coming trials prove successful with that depth, then surely the State would be justified in adopting such measures as would, at all times, insure the requisite supply of water. My observation, during my connection with your board, leads me to the conclusion, that the first and gravest difficulty in the way of success, on the part of those who have heretofore sought to solve the problem under consideration, as well as in the case of a large majority of those who are now proposing to undertake its solution, consists in the want of sufficient knowledge of the principles of steam navigation. Most of these parties, instead of directing their attention to a judicious application of well known and successful modes of propulsion, have endeavored, and are endeavoring, to invent some new propelling instrument; producing, in their efforts, the same device, or devices similar to those which were proposed, and, in many instances, tried, by the early laborers in this field, during the experiments which finally resulted in the adoption of the paddle-wheel and screw, to the exclusion of all other devices.

I feel no hesitation in expressing the opinion that success will, ultimately, be attained, if attained at all, by the adoption of one or the other of these instruments; or with some modification of them, which may be necessary to adapt them to the peculiar conditions under which they are to be employed. Assuming that the best propelling instrument is adopted, then a serious difficulty may be, and indeed has already been, encountered, in the shape of shoal water on those portions of the canal where, during dry seasons, the water supply is likely to be deficient.

In order to comply with the provisions of the law, in regard to carrying capacity, the boats must draw so much water as to require the full depth of seven feet, in order that the requisite speed may be attained without the employment of excessive power. This condition is rarely, if ever, satisfied. During the past season, several points were found where the depth did not exceed six feet to six feet six inches; and where a boat, carrying 200 tons of cargo, must touch bottom, or so nearly touch bottom, that the resistance to its movement will be very largely increased, or its speed diminished. This difficulty, if not remedied, I believe may be fatal; unless the boats themselves be made lighter, by the use of iron in their construction; or unless some other plan be contrived, whereby the draught of water may be reduced without impairing the carrying capacity of the boat.

Another difficulty suggests itself; and that is, the fact that, when light, the propelling instrument—particularly the screw—will be, to a large extent, out of water. While this is true of all vessels propelled by steam, it is to be observed that, in the case of the canal boat, the difference between the draughts, when light, and loaded, is much larger, relatively, than in the case of other water craft propelled by steam.

The diameter of the screw for a boat drawing six feet of water when loaded, would be from four feet six inches to five feet. Suppose it to be five feet; and that, at top and bottom, it is six inches below the surface, and above bottom of the boat, respectively.

Now, when the boat is light, and drawing from sixteen to eighteen inches of water, the immersion of the propeller blades will be only ten to twelve inches. This difficulty would be remedied, to some extent, by the location of the machinery well astern, so as to increase the draught there considerably above the average, or by admitting a sufficient quantity of water to increase the draught to such an extent as would insure the requisite immersion of the propelling instrument. The former might alone produce the desired result. The latter, alone, or in conjunction with the former would certainly do so.

THE "DAWSON."

This is the only steamer that has been brought to the official notice of the board. She has made two round trips from New York to Buffalo and return, and one to Syracuse, during the season. An abstract of the "log" of this steamer, for one trip from Albany to

Buffalo, and return to West Troy, has been furnished me by Mr. Thomas Main, the inventor of the system employed therein.

The boat left the weigh-lock at Albany, at 9.45 A. M., on August 4th, laden with 180 tons coal, and reached Syracuse on the 14th of the same month at 2 P. M., where thirty tons of coal were discharged on account of low water. On the 16th she left Syracuse at 1 P. M., and reached Buffalo at 9.30 A. M. on the 22d; having been fifteen minutes less than eighteen days on the way.

The detentions were noted as follows :

	Hours.
At lock No. 5, on account of the breaking of a lock-gate...	3.00
Schenectady, Saturday P. M. and Sunday	42.50
Schoharie lock, bar.....	12.50
Fultonville, for water.....	0.75
Spraker's	0.75
Little Falls.....	25.50
Mohawk	8.83
Six miles east of Utica, aground, level twelve inches low,	6.25
Utica, repairing steam pipe.....	19.00
West of Utica, shoal water	5.50
Rome, for water	0.75
Durhamville	1.25
Canastota, Sunday	30.50
Syracuse.....	23.00
Geddes, for coal	1.00
Clyde, at locks	1.67
Beyond Palmyra, locks	3.00
Rochester.....	0.75
Albion.....	0.75
Knowlsville, Sunday.....	33.00
Middleport, for water.....	0.50
Lockport, locks.....	0.55
Locked through five locks in twenty-five minutes.	
Tonawanda	3.25
Total detentions.....	<u>224.88</u>

Or about nine days and nine hours; which, deducted from the total time, seventeen days twenty-three hours forty-five minutes, leaves eight days and fifteen hours, nearly, as the running time, and indicates an average speed of 1.69 miles per hour.

Three miles, west from Schenectady, is said to have been made in one hour, "against a strong current."

On the return trip, this boat left Buffalo on the 28th August, at 4.30 P. M., and reached the West Troy weigh-lock at 12.30 A. M., September 7th; making the run in nine days and eight hours, with the following detentions:

	Hours.
At Black Rock.....	1.00
Lockport, locked through five locks in thirty minutes.	
Middleport.....	0.50
Brighton.....	1.00
Clyde.....	0.50
Montezuma.....	0.75
East of Montezuma, aground.....	1.00
Jordan.....	1.45
Geddes.....	1.00
Lodi.....	2.00
Utica, Sunday.....	26.25
Little Falls.....	13.50
Fort Plain.....	6.50
Total detentions.....	<u>54.45</u>

Or two days six and a half hours, nearly.

The running time was, therefore, seven days and two and a half hours; indicating an average speed of 2.02 miles per hour. On this trip the load is said to have been 200 tons of corn.

In a printed pamphlet, Mr. Main gives the result of a subsequent trip from Buffalo to Cohoes, which is, in substance, as follows:

Left Buffalo 18th October, at 3.45 p. m., loaded with 200 tons of wheat. From Buffalo to Rochester, ninety-three miles, running time thirty hours; speed 3.04 miles per hour.

Brighton to Geddes, eighty-eight miles, including time through thirteen locks, time fifty hours, or 1.76 miles per hour.

From Lodi to Rome, forty miles; time, twenty-two hours; or 1.82 miles per hour. From Utica to Cohoes, ninety-nine miles; time, including passage of twenty-six locks, forty-seven and one-half hours; or 2.1 miles per hour.

During the season, I endeavored to spend some time on board this boat, going to Utica and Fultonville for that purpose; but, owing to unexpected detentions, I failed to meet it. On one occasion, however, I visited the boat at West Troy, and went part of the way to Cohoes on board; my object at that time being to observe her behavior in passing locks. This I found to be very satisfactory, indeed. In one instance the steamer and a horse boat reached a double lock at the same moment. When the steamer had cleared the lock, and was well under way, the horse boat had just entered the lock and the lower gates were being closed.

In addition to the difficulty experienced by this boat, on account of shoal water, I think her power somewhat too small. Judging from the reported coal consumption, and my observations while on board, I am of the opinion that the power was uniformly about twenty-two horses.

That this power is not employed to the best advantage, is indicated by the enormous slip of the screw. The pitch of the screw is six feet, and the revolutions are put at eighty to ninety per minute. Taking the revolutions at eighty, the advance per minute due to the pitch would be $6 \times 80 = 480$ feet. Take now the speed of the boat at its maximum of three miles, its movement per minute would be $60 \times 3 \times 1.46 = 263$ feet. The difference, $480 - 263 = 217$ feet, represents the slip; which, therefore, appears to be $217 \times 100 \div 480 = 45.2$ per cent. At ninety revolutions, or at a less speed, the slip would be correspondingly increased.

This excessive slip of the screw is due, in my judgment, to the fact that the water thrown astern by it has to effect its passage through a contracted channel at great speed, developing a resistance which has the effect to seriously impede the progress of the boat.

The principal claim of Mr. Main, as I understand it, consists in this: that the screw, forcing the displaced water under the boat, precludes the necessity of its passing along the sides, and thus prevents the formation of an injurious wave or swell in advance of the boat.

Now, the most the screw can do, in the direction indicated, is to throw astern a cylinder of water, whose diameter is equal to that of the screw, or four feet six inches. While the boat is moving ahead, a distance equal to its own length—taking the slip at fifty per cent—the length of this cylinder will be $1\frac{1}{2} \times 98 = 147$ feet, and its weight 73 tons. Taking the displacement of the loaded boat at 275 tons, and it will not differ much from that, it appears that $275 - 73 = 202$ tons, or about seventy-three per cent, of the water has to find its way astern along the sides of the boat, as in the case of ordinary boats.

FORMER ATTEMPTS TO INTRODUCE STEAM UPON THE CANALS.

Diligent inquiry, in various quarters, has been made, with a view to obtain information in regard to the earlier efforts to introduce steam as a motive power on the canal.

No precise information in regard to the details of these efforts could, however, be obtained. Beyond the simple fact that the attempts proved unsuccessful, no satisfactory or useful record appears to have been preserved. For this reason, the design, originally entertained, of presenting a detailed history of the earlier experiments and failures has been abandoned.

Respectfully submitted.

D. M. GREENE,
Engineer, etc.

TROY, February 13, 1872.

DIMENSIONS OF THE ERIE AND OSWEGO CANALS AND THEIR STRUCTURES.

CANALS.

Length of Erie canal.....	351.78 miles.
Length of Oswego canal	38 miles.
Width at surface of water.	70 feet.
Width at bottom :	
With slope wall, 1 to 1.....	56 feet.
With slope wall, $1\frac{1}{4}$ to 1.....	52 $\frac{1}{2}$ feet.
With bench wall	42 feet.
Depth of water	7 feet.

BRIDGES.

Height in clear, above water line.....	12 feet.
--	----------

LOCKS.

No. of locks on the Erie canal: Double, 57; single, 15,	72
No. of locks on the Oswego canal.....	18
Length of locks, 110 feet between hollow quoins, admitting the passage of boats ninety-six feet in length.	
Width at surface of water of lower level	18 feet.
Width on bottom ..	17 ft. 4 $\frac{1}{2}$ in.

AQUEDUCTS.

Width, about.....	50 feet.
-------------------	----------

BOATS.

The following are the outside dimensions of two kinds of the largest sized boats in general use on the canals :

LAKE-BOATS.

Length	95 feet.
Midship section :	
Width at one foot from bottom	17 ft. 3 in.
Width, seven feet up from bottom.....	17 ft. 7 in.
Depth.....	9 ft. 7 in.
Carrying capacity, about	225 tons.
Light weight, about	60 tons.

The above is the usual form adopted in the construction of boats of this class ; they vary, however, somewhat in depth of hull.

BULLHEAD-BOATS.

Length ..	96 feet.
Width on bottom	17 ft. 2 $\frac{1}{2}$ in.

Width, six feet up from bottom	17 ft. 8 in.
Depth of hull	9 feet.
Depth over all	12 ft. 1 in.

From the point six feet from bottom to the top of hull
the sides fall in two and a half inches.

Carrying capacity, about	240 tons.
Light weight, about	55 "

FORM OF BOWS.

The following from the canal regulations and from instructions issued by the auditor of the canal department, show the shape of bow required and generally used on boats navigating the canals:

"40. In order to protect other boats and the canal banks and structures from injury, no scow or other boat, hereafter to be built and registered, shall be permitted to navigate any canal unless the whole bow of said scow or boat be constructed of an elliptical or semicircular form, the versed sine of which shall not be less than one-fourth of the chord."

"The bow of a ship, vessel or boat is defined to be the rounding of '*her sides* forward, beginning where the planks arch inward, and terminating where they close at the stem or prow.' In this sense the word or term is used by the canal board in the regulation when requiring the *whole bow*, not the top of it or deck only, to be constructed in the elliptical form designated.

"A boat constructed with a bow having the *versed sine* longer than one-fourth of the chord, does not conflict with the regulation."

"The radius, where the *versed sine* is one-fourth of the chord, can always be found by multiplying the chord by ten and dividing by sixteen. The result is the length of the radius."

FROM THE REGULATIONS OF THE CANAL BOARD.

No boat drawing more than six feet of water shall be cleared after the first day of June, 1864, by any collector on the Erie, Oswego, and Cayuga and Seneca canals; and that it shall be the duty of every collector, superintendent, inspector and weighmaster to cause every boat found violating the regulation on this subject to be so far unloaded as to bring her within the prescribed limits; and in every case where a boat is so unloaded, the fact shall be entered on her clearance, with a statement of the portion of her cargo taken off; and in every case where a boat shall be found drawing more water than six feet, as provided in this regulation, her master or owner shall be sub-

ject to a penalty of twenty-five dollars, to be imposed and collected by any and every collector, superintendent, inspector and weighmaster who may, at different times and places, detect such overdraft ; and every collector shall enter upon the clearance the draft of water of every boat at the time of such clearance.

No boat or other craft, whose height or distance from the water line of such boat or craft to the top thereof, shall exceed eleven feet and three inches ; and no loaded boat or other craft whose cargo, or any part thereof, is so arranged or placed on such boat or craft so that the top, or extreme height of the same shall exceed eleven feet and three inches from the water line of such ladened boat or craft ; and no steamboat, tug or other craft propelled by steam, whose height, when the top of the deck, machinery, fixtures or other apparatus shall exceed eleven feet and three inches, shall be allowed or permitted to navigate the Erie, Oswego, and Cayuga and Seneca canals.

All boats propelled or drawn by steam, together with the boats in tow thereof, shall have preference at the locks over other boats and floats, except as otherwise provided by statute.

STATE OF NEW YORK.

No. 72.

IN SENATE,

April 1, 1873.

LIST OF GENERAL ORDERS.

G. O.

429. An act for the protection of poultry and game, by a bounty upon foxes and skunks.
430. An act to authorize the board of assessors to ascertain and fix damages for closing streets and roads in the city of New York, and making appropriation for the payment of the same.
431. (Assembly, 222.) An act to provide for the improvement of the southerly portion of Bedford avenue in the city of Brooklyn.
432. (Assembly, 299.) An act to close part of the old Bushwick road or avenue in the city of Brooklyn.
433. (Assembly, 388.) An act to amend an act entitled "An act to authorize certain towns in the counties of Sullivan and Orange to issue bonds and take stock in any company now organized, or that may hereafter be organized within three years after the passage of this act, for the purpose of building a railroad from the village of Monticello, in the county of Sullivan, through the towns of Thompson and Forestburgh, in said county of Sullivan, and the town of Deerpark, in the county of Orange, to Port Jervis, Orange county," passed May 4, 1868.
434. An act in relation to the Frankfort and Ilion Street Railroad Company, in Herkimer county.
435. (Assembly, 204.) An act to amend chapter 837 of the Laws of 1872, entitled "An act to incorporate the Hunter's Point and Flushing Railroad Company."

G. O.

436. (Assembly, 281.) An act to incorporate the McClintock Association.
437. (Assembly, 379.) An act in relation to lands heretofore conveyed to assignees or receivers.
438. (Assembly, 110.) An act to legalize the adoption of minor children by adult persons.
439. (Assembly, —.) An act to amend an act entitled "An act to authorize the Ridgefield and New York Railroad Company to extend their road through the towns of Lewisboro, Poundridge and Rye, in the county of Westchester," passed May 6, 1872.
440. (Assembly, 280.) An act in relation to the justices' court of the city of Albany.
441. An act to authorize the mayor, aldermen and commonalty of the city of New York to convey certain lands to the United States.
442. An act to authorize boards of supervisors to limit the expense of printing and publishing Session Laws and other public printing at the expense of the county.
443. An act authorizing the adjudication and settlement of certain claims, arising out of the defalcation of the late treasurer of Yates county, with this State and the said county.
444. (Assembly, 118.) An act to authorize the town of Owego to purchase the toll bridge across the Susquehanna river in the village of Owego, and to maintain the same as a free bridge, and to construct and maintain a free bridge across the Susquehanna river between the villages of Campville and Apalachin, in the town of Owego.
445. (Assembly, 197.) An act in reference to the summoning of jurors in the county of Kings; and fixing the compensation of the sheriff therefor.
446. An act supplemental to an act entitled "An act to provide for the construction of a drain or sewer in Central avenue, Johnson avenue and Knickerbocker avenue, and other streets in the city of Brooklyn," passed May 3, 1869, and to an act amendatory thereof.
447. An act to incorporate the Independent Hose Company No. 3, of Elmira, N. Y.

G. O.

448. An act to reorganize the fire department of the city of Brooklyn, and to reduce the number of commissioners thereof.
449. (Assembly, 303.) An act to continue in force and amend chapter 138 of the Laws of 1852, entitled "An act to incorporate the firemen of the city of Utica, as a benevolent association."
450. An act relating to claims and deficiencies in the city and county of New York, and to provide for the payment of the same.
451. An act to amend an act entitled "An act to incorporate the village of New Brighton, in the county of Richmond," passed April 26, 1866, and the several acts to amend the same, passed April 22, 1871, and April 27, 1871, and March 27, 1872.
452. (Assembly, 555.) An act to amend an act entitled "An act to revise, consolidate and amend the act to incorporate the village of Stillwater," passed April 17, 1816, and the act to amend the same, passed March 17, 1860, and the act to amend the same, passed April 27, 1865.
453. An act to amend an act entitled "An act to authorize the incorporation of the Iroquois Agricultural Society, among the Iroquois Indians in this State," passed May 5, 1863.
454. (Assembly, 229.) An act to authorize Union College (known by the corporate name of the trustees of Union College of the town of Schenectady, in the State of New York), the Albany Medical College, the University of Albany and the Dudley Observatory of the city of Albany to unite for certain purposes and to form a corporation to be called the Union University.
455. (Assembly, 217.) An act to incorporate the New York Loan and Security Company.
456. An act to incorporate the International Exchange and Agency Company of New York.
457. An act to incorporate the New York Mortgage Company.
458. (Assembly, 191.) An act relating to the building commissioners for the erection of the State reformatory at Elmira, Chemung county.
459. An act to authorize the First Reformed Protestant Dutch Church, in Clarkstown, in the county of Rockland, to apply certain moneys to the payment of the indebtedness incurred

G. O.

in the erection of an edifice for the education of the poor children belonging to said church.

460. An act to legalize and confirm a patent issued to Ann E. Coe, executrix of and trustee under the last will and testament of Frederick A. Coe, deceased, for lands under water in the city of Yonkers.
461. An act to enable Francisco Jose Alvarez Calderon y Kessel, Marquis de Casa Calderon, to take, hold, convey and transmit, by descent or devise, real estate, and to lease to him the interest of this State in certain lands.
462. An act to release to Margaret Thompson the title of certain lands escheated to the State of New York, formerly belonging to Robert Thompson, deceased.
463. An act to confirm the election and acts of James H. Vail, a justice of the peace of the county of Livingston.
464. An act to amend an act entitled "An act to authorize the formation of corporations for manufacturing, mining, mechanical and chemical purposes," passed February 17, 1848.
465. (Assembly, 15.) An act to amend the provisions of the Revised Statutes with regard to the fees of appraisers appointed by surrogates.
466. An act to authorize Frances Upton Morris Vance to change her name to Frances Upton Morris.
467. An act to extend the time for the completion of the Boston, Hartford and Erie railroad.
468. An act to amend an act entitled "An act regulating the sale of intoxicating liquors," passed April 11, 1870.
469. An act for the erection of an iron bridge over the Erie canal at the city of Cohoes, in the county of Albany.
470. An act to amend an act for the suppression of the traffic in and circulation of obscene literature, being chapter 747 of the Laws of 1872.
471. An act to amend an act entitled "An act to incorporate the Union Trust Company of New York," passed April 23d, 1864.
472. An act to authorize marine insurance companies to declare extra dividends in certain cases.
473. An act to incorporate the Forest Lake Villa Park Association.

STATE OF NEW YORK.

No. 73.

IN SENATE,

April 2, 1873.

COMMUNICATION

FROM THE SECRETARY OF WAR ASKING THE CONSENT OF THE STATE TO THE PURCHASE BY THE UNITED STATES OF CERTAIN LANDS PERTAINING TO THE MILITARY POST AT WEST POINT, AND A CESSION OF JURISDICTION OVER TWO LOTS FOR A NATIONAL CEMETERY AT LONG ISLAND.

STATE OF NEW YORK:

EXECUTIVE CHAMBER,
ALBANY, *April 1, 1873.* }

To the Legislature:

I transmit a communication from the Secretary of War asking the consent of this State to the purchase by the United States of certain lands pertaining to the military post at West Point, and a cession by this State of its jurisdiction over said lands.

I also transmit a communication made by order of the Secretary of War, accompanied by a copy of an act of Congress, asking a like cession of jurisdiction over two lots of ground, purchased by the United States, for the purpose of maintaining a national cemetery, from the Cypress Hills Cemetery Association on Long Island, near the city of Brooklyn.

JOHN A. DIX.

OFFICE OF CHIEF QUARTERMASTER,
 FIRST QUARTERMASTER DISTRICT DEPT. OF THE EAST, }
 NEW YORK CITY, *February 3, 1873.*

Hon. JOHN A. DIX,

Governor of the State of New York, Albany, N. Y.:

SIR.—In pursuance of instructions received from the War Department, I have the honor to request that the Legislature of the State of New York be requested to cede to the United States jurisdiction over the grounds of the national cemetery at Cypress Hills, L. I.

A draft of a bill for the desired cession is herewith inclosed, together with a copy each of an act of Congress and deed to the United States.

I am, sir, very respectfully,

Your obed't serv't,

R. N. BATCHELDER,
*Major and Quartermaster, U. S. A.,
 Chief Quartermaster.*

[PUBLIC—No. 131.]

AN ACT to amend an act entitled "An act to establish and to protect national cemeteries."

Be it enacted by the Senate and House of Representatives of the United States of America, in Congress assembled, That from the time any State legislature shall have given or shall hereafter give the consent of such State to the purchase, by the United States, of any national cemetery mentioned in the act entitled "An act to establish and protect national cemeteries," approved February twenty-second, eighteen hundred and sixty-seven, the jurisdiction and power of legislation of the United States over such cemetery shall, in all courts and places, be held to be the same as is granted by section eight, article one, of the Constitution of the United States; and all the provisions of said act of February twenty-second, eighteen hundred and sixty-seven, shall be applicable to the same.

SEC. 2. *And be it further enacted,* That it shall be the duty of the Secretary of War to cause copies of this present act to be sent to the governors of all such States wherein any of such national cemeteries may be situated, to the end that the legislatures of such States may give the consent herein mentioned.

Approved July 1, 1870.

[Copy.]

Know all men by these presents : That the Cypress Hills Cemetery corporation, in consideration of the sum of nine thousand six hundred dollars, paid to them by the United States of America, the receipt whereof is hereby acknowledged, do grant, bargain, sell and by these presents convey to the United States and their assigns, two (2) plats of land in cemetery of the said corporation, situate on the northerly side of the Brooklyn and Jamaica turnpike, near the city of Brooklyn and State of New York, which plats are known on section map number eighteen as part of said cemetery grounds, laid out by Noyes G. Palmer, surveyor, dated June 21, 1861, and filed in the office of the clerk of the county of Queens. The said two plats are described and bounded as follows, viz. :

First. A plat of land situate on the northerly side of Cypress way: Beginning at a stone on the south-west corner of said Cypress way and Metropolitan way; thence northerly along the westerly side of said Metropolitan way 107 feet to Union path; thence westerly along the southerly side of said Union path (in a straight line) 321 feet to the easterly side of said Metropolitan way; thence in a southerly direction 86 feet to the northerly side of said Cypress way; thence along the northerly side of said Cypress way 390 feet to the place of beginning.

Second. A plat of land situate on the southerly side of the aforesaid Cypress way: Beginning at a stone at the north-west corner of lot 396, section 18; thence southerly 184 feet to a stone wall extending along the northerly side of the Williamsburgh and Cypress Hills macadamized road; thence in a westerly direction along said stone wall 550 feet; thence northerly 107 feet to said Cypress way; thence easterly along the southerly side of said Cypress way 511 feet to the place of beginning.

To have and to hold the aforesaid described premises to the United States and their assigns forever; subject, however, to the rules and regulations of the said cemetery. And the Cypress Hills Cemetery corporation do hereby covenant to and with the United States and their assigns that they are lawfully seized of the said premises in fee simple; that they have a right to sell and convey the same as above expressed; that the said premises are free and clear of all charges and incumbrances, and that they will warrant and defend the same with the said United States and their assigns forever.

[L. s.]

In testimony whereof the said Cypress Hills cemetery have caused this deed to be signed by their president and countersigned by the treasurer, and the common seal to be hereunto affixed this twenty-ninth day of March, in the year of our Lord one thousand eight hundred and seventy.

(Signed)

EDWARD DRIGGS,
*President.*WM. MILES,
Treasurer.

NOTE.—The land described in the foregoing deed occupies about 289 burial plots 20x20, containing 400 superficial feet each, and are divided as follows, viz.: For graves in which the soldiers are interred, 169 of said lots, for which no charge to the government is made; or in other words is donated to the government by the cemetery. The remaining 120 lots are occupied for the government superintendent's quarters, flag-staff and surroundings, for which \$80 per lot is charged, making the consideration \$9,600, as expressed in deed.

STATE OF NEW YORK, }
CITY OF BROOKLYN, COUNTY OF KINGS, } ss.:

On this twenty-ninth day of March, in the year of our Lord one thousand eight hundred and seventy, personally before me came Edward Driggs, to me known, who being by me duly sworn, did depose and say, that he resides in the city of Brooklyn aforesaid; that he is president of the Cypress Hills cemetery; that the seal affixed to the within conveyance is the corporate seal of said cemetery, and was so affixed by order of said cemetery; and that by the like order he signed his name thereto as the president of said cemetery.

(Signed)

JNO. H. MOTT,
Notary Public, Kings Co.

Recorded in county clerk's office, Queens county, N. Y., March 22, 1871, at ten A. M., in liber 342 of deeds, page 380.

True copy:

R. N. BATCHELDER,
Major and Quartermaster U. S. A.

STATE OF NEW YORK.

No. 74.

IN SENATE,

April 4, 1873.

REPLY

OF THE BUILDING COMMISSIONERS OF THE STATE REFORMATORY AT ELMIRA TO A RESOLUTION OF THE SENATE, PASSED MARCH 20, 1873, REQUESTING INFORMATION RELATIVE TO THE CONDITION OF SAID BUILDING, NOW IN PROCESS OF CONSTRUCTION.

To the Honorable the Senate of the State of New York :

In compliance with a resolution of the Honorable the Senate, passed March 20, 1873, requesting certain information in relation to the condition of the State Reformatory at Elmira, N. Y., now in process of construction, the Building Commissioners, by their officers, respectfully submit the following report in relation thereto :

1st. Detailed statement of the work done upon the Reformatory Building, and the present state and condition thereof.

The foundations of the guard room part of the building, comprising the sub-cellar, making a total length of about 300 feet, and ten feet high, have been completed, and the supporting iron columns and heavy iron girders and beams with tie rods and anchors put in position. The foundations for the main outside walls and cross walls have been completed, comprising a total length of considerably over two thousand (2,000) lineal feet, about six feet below the surface, and on a foundation of concrete. The foundation walls for four blocks of

and including 448 cells have also been completed, comprising about 2,000 cubic yards of masonry. The cut stone, flagging and bases have been put in place on the foundations of three of these blocks of cells, and the brick work of one block is about one story high. Over 300 lineal feet of the cut dimension stone (rusticated ashlar), on the south wing of the building, is cut and set in the walls, and backed up with rubble masonry and brick work from foundation to and including water table. The iron door frames are inserted in turrets in this wall, as also are the door frames, bucket niches, etc., in block "S" of cells. There is delivered for the foundation of the remaining block of cells a sufficient amount of stone to construct the same. For a detailed statement of materials in work of building superstructure of main building, of stone delivered, cut and uncut, and of brick prepared for main building, reference is made to Estimate No. 1, hereto annexed. For a statement of iron now in the work and delivered ready for insertion, reference is made to Estimate No. 2, hereto annexed. For detailed statement of flagging laid in cells and flagging delivered for cells and corridors, and also pressed brick built into cells and delivered for cells, reference is made to Estimates 3 and 4, also hereto annexed. For detailed statement of masonry laid in foundations of cells, and materials delivered for same, reference is made to Estimate No. 5, hereto annexed. For detailed statement of work done in constructing foundations of main building, reference is made to Estimate No. 6, hereto annexed.

2nd. The Yard Wall.

The plan provided for the yard wall contemplates a wall about 1,900 feet in length, and 25 feet high above the surface of the ground. The depth of the wall below the grade of the yard to vary with the surface of the ground from $5\frac{1}{2}$ to 14 feet in depth. The top of the wall to be coped with cut stone five feet in width. The foundation for this wall is all in except about 300 feet. About 300 lineal feet of the north wall is carried to full height. The balance of the north wall, and west wall to middle turret is about nine feet above the surface of the ground. The balance of the west wall is about four feet above the surface. It is believed that nearly sufficient materials are delivered and paid for to complete the wall, except a part of the coping and cut stone for gateways. For a detailed statement of amount of work done and materials furnished for yard wall, reference is made to Estimates Nos. 7 and 8, hereto annexed.

3d. The quantity and kind of materials on hand ready for use in the further construction of the Reformatory, the cost of such material and its present value.

For a detailed statement of the amount and kind of materials on hand, the estimates heretofore enumerated from 1 to 8 inclusive, and hereto annexed, are again referred to. The cost of these materials, including those on hand, for completion of yard wall is \$114,242.09. It is believed that all the material is worth all that it has cost the State, and that portion of it which is iron, amounting to \$36,021.09, is worth an advance of at least twenty-five per cent on its cost. It may be proper to state that, from this amount of \$114,242.09, fifteen per cent has been retained and will be retained until the completion of the contract.

4th. The amount, kind and cost of any machinery belonging to the Reformatory.

There is no machinery belonging to the Reformatory. There are tools of various kinds, of the value of perhaps \$250. There is a Fairbank scale for weighing iron, which cost \$250. There is one office, tool-shed and storehouse, built of rough boards and connected, of the estimated value of \$300. There is also a shed to protect the iron delivered, of the estimated value of \$150. Also a quantity of hemlock lumber estimated at \$120.

5th. A statement of all debts and liabilities of the institution.

The institution has no liabilities except the fifteen per cent retained on all contracts, amounting at this date to \$31,493.28, and perhaps two or three hundred dollars for office rent and a few miscellaneous bills.

Copies of the several contracts for work and material are submitted herewith, and marked from A to F, inclusive.

6th. The architects employed by the commissioners are William L. Woollett, of Albany, architect-in-chief, and A. J. Warner, of Rochester, supervising architect. The said architects have already received \$11,600 for services rendered. The amount agreed to be paid for furnishing all the plans and supervising the carrying out of said plans is three per cent upon the full cost of all the work done for which they are employed to make plans, specifications, and give supervision.

7th. The name of the present superintendent is J. Nelson Tubbs,

his profession a civil engineer, and his compensation \$3,000 per year.

STATE OF NEW YORK, }
CHEMUNG COUNTY, } ss.:

J. Davis Baldwin, chairman, and Samuel C. Taber, secretary, and assistant and acting treasurer of the Building Commissioners of the State Reformatory, at Elmira, N. Y., being each duly sworn, depose and say that the foregoing statement, in response to a resolution of the honorable the Senate of the State of New York, passed March 20, 1873, requesting certain information in reference to the said State Reformatory, is correct and true, according to their best knowledge and information; and that the estimates annexed to and referred to in said statement are also correct and true, as they verily believe, and that the copies of contracts herewith submitted are furnished in response to the said resolution to the honorable the Senate.

J. D. BALDWIN, *Chairman.*

SAMUEL C. TABER,

Secretary, and Asst. and Acting Treasurer.

Sworn to before me this }
28th day of March, 1873. }

[L. s.]

HENRY W. BEADLE,
Notary Public for Chemung County.

(No. 1.)

MONTHLY ESTIMATE TO MARCH 1ST, 1873.

*For constructing the superstructure of State Reformatory at Elmira,
N. Y. Geo. W. Aldridge, Contractor.*

Quantities.	Items.	Contract price.	Relative price.	Amount.
3,228 superficial ft.	dimension stone in work.....	\$2,25	.....	\$7,263 00
84,000 brick	in work, per M.....	13 50	.....	1,134 00
MATERIALS FURNISHED.				
4,440 superficial feet	cut dimension stone.....	.....	\$1 85	8,251 00
4,460 superficial feet	irregular block work.....	.....	50	2,230 00
1,500 superficial feet	undressed dimension stone...	.....	60	900 00
1,012,000 bricks,	per M.....	.....	8 00	8,096 00
105 c. yds.	undressed broken Ashlar.....	.. ..	7 00	785 00
Amount				\$28,609 00
Add.....				6 25
Total amount estimated.....				\$28,615 25
Per centage retained.....				4,392 28
Amount of payment				<u>\$24,223 97</u>

(No. 2.)

MONTHLY ESTIMATE TO MARCH 1ST, 1873.

*For constructing the Iron Work for State Reformatory at Elmira
N. Y. Geo. Worthington, Contractor.*

Quantities.	Items.	Contract price.	Relative price.	Amount.
33,223 pounds	cast iron in work.....	\$0 06	.....	\$1,993 38
2,145 pounds	wrought iron in work.....	08	.....	171 60
55,110 pounds	wrought iron rolled beams.....	06½	.....	3,582 15
MATERIALS FURNISHED.				
253,300 pounds	cast iron.....	.....	\$0 06	15,198 00
91,616 pounds	cast iron.....	.....	05½	5,267 92
145,066 pounds	cast iron.....	.....	05½	7,615 96
8,254 pounds	wrought iron.....	.....	08	660 32
10,556 pounds	wrought iron.....	.....	07½	791 70
99,803 pounds	wrought iron rolled beams.....	.....	06½	6,487 19
Amount.....				\$41,768 23
Off.....				68 22
Total amount estimated.....				\$41,709 00
Per centage retained.....				6,255 00
Amount of payment.....				<u>\$35,445 00</u>

(No. 4.)

MONTHLY ESTIMATE TO JANUARY 1ST, 1873.

*For facing cells with pressed brick and cutting belting or projection
under coping of yard wall for State Reformatory at Elmira, N.
Y. Geo. W. Aldridge, Contractor.*

Quantities.	Items.	Contract price.	Relative price.	Amount.
5,000	pressed brick in work, per M :.....	\$30 00	.....	\$150 00
600	superficial feet belting cut.....	2 00	.....	1,200 00
MATERIALS FURNISHED.				
35,000	pressed bricks for facing cells.....	\$20 00		700 00
Amount.....				\$2,050 00
Off.....				10 00
Total amount estimated.....				\$2,040 00
Per centage retained.....				306 00
Amount of payment.....				<u>\$1,734 00</u>

(No. 5.)

MONTHLY ESTIMATE TO DECEMBER 1ST, 1872.

For constructing the foundation for cells for State Reformatory at Elmira, N. Y. John Kiley, Contractor.

Quantities.	Items.	Contract price.	Relative price.	Amount.
2,044 c. yds.	rubble masonry in cement.....	\$8 00	.....	\$16,852 00
MATERIALS FURNISHED.				
300 c. yds.	stone for rubble masonry.....	.....	\$5 00	1,500 00
Amount	.....			\$17,852 00
Add	.....			8 00
Total amount estimated	.....			\$17,860 00
Per centage retained	.....			2,679 00
Amount of payment	.....			\$15,181 00

(No. 7.)

MONTHLY ESTIMATE TO MARCH 1ST, 1873.

For constructing yard wall for State Reformatory at Elmira, N. Y. John Kiley, Contractor.

Quantities.	Items.	Contract price.	Relative price.	Amount.
5,630 c. yds.	masonry in cement	\$10 00	.....	\$56,300 00
1,000	superficial feet water table.....	75	.....	750 00
476	superficial feet coping.....	75	.....	357 00
MATERIALS FURNISHED.				
6,900 c. yds.	stone for masonry.....	.....	\$0 06½	44,850 00
300	superficial feet coping.....	.....	60	180 00
Add	.....			8 00
Total amount estimated	.....			\$102,440 00
Per centage retained	.....			15,366 00
Amount of payment	.....			\$87,074 00

(No. 3.)

MONTHLY ESTIMATE TO MARCH 1ST, 1873.

For furnishing and laying flagging for State Reformatory at Elmira, N. Y. Geo. W. Aldridge, Contractor.

Quantities.	Items.	Contract price.	Relative price.	Amount.
8,940	superficial feet flagging in the work.....	\$1 50	.....	\$5,910 00
MATERIALS FURNISHED.				
8,460	superficial feet flagging for cells.....	.....	\$1 25	10,575 00
840	superficial feet flagging for corridors, etc. ....	.....	60	204 00
Amount	.....			\$16,689 00
Off	.....			9 00
Total amount estimated	.....			\$16,680 00
Per centage retained	.....			2,502 00
Amount of payment	.....			\$14,178 00

(No. 8.)

MONTHLY ESTIMATE TO DECEMBER 1ST, 1872.

For furnishing and dressing the cut stone for doorways, gateways, etc., in yard wall of State Reformatory at Elmira, N. Y. Geo. W. Aldridge, Contractor.

Quantities.	Items.	Contract price.	Relative price.	Amount.
240 superficial feet cut stone in work		\$2 00	.....	\$480 00
70 superficial feet cut stone delivered.....		2 00	.....	140 00
Total amount estimated.....				\$620 00
Per centage retained.....				93 00
Amount of payment.....				\$527 00

(No. 6.)

Final estimate of work done in constructing the foundation walls of State Reformatory at Elmira, N. Y. John Kiley, Contractor.

Quantities.	Items.	Contract price.	Relative price.	Amount.
3,208.94 c. yds. masonry in cement.....		\$6 00	.....	\$19,253 64
(Work which, by specifications, was included in contract but for which no prices were fixed.)				
189.38 c. yds. coping on foundation walls			\$12 00	2,272 56
2,024.34 square feet cut and bash hammered masonry ..			2 25	4,554 76
5 days' mason's labor taking down wall and making opening through area wall.....			3 50	17 50
5 days' common labor do. do.			2 00	10 00
5 days' mason labor rebuilding wall			3 50	17 50
5 days' common labor rebuilding wall....			2 00	10 00
2½ days' mason labor fitting and resetting stone for ends of wrought iron bearing beams.....			3 50	8 75
2½ days' common labor do. do.....			2 00	5 00
Amount				\$26,149 71
Deduct materials furnished by the State.....				934 71
Total amount estimated.....				\$25,215 00

(Copy.)

CONTRACT WITH JOHN KILEY—FOUNDATION AND YARD WALL. A.—1871.

New York State Reformatory General Contract.

Articles of agreement, made and concluded the 31st day of August in the year eighteen hundred and seventy-one, between John Kiley of the city of Rochester, county of Monroe, of the first part, and the building commissioner of the State Reformatory at Elmira, New York, of the second part, whereby it is covenanted and agreed as follows :

KIND OF WORK.

The said John Kiley, party of the first part, hereby covenants and agrees to furnish all materials, which shall be of a sound and good quality, and perform all the labor necessary to construct and to finish in every respect, in the most substantial and workmanlike manner, the foundation walls of the State Reformatory, as the same are located at Elmira, New York.

The construction of the aforesaid work shall be, in all respects, according to the specifications hereunto annexed, which are to be considered as part of this contract.

DISMISSAL OF WORKMEN.

And it is further agreed that if, at any time, any overseer or workman employed by the party of the first part shall be declared to be unfaithful or incompetent, by the superintendent and engineer having charge of said work embraced in this contract, or by the commissioner, the said party of the first part, on notice of such declaration, shall forthwith dismiss such person, and shall no longer employ him on any part of the work.

And it is further agreed that this contract in every respect shall progress in such order, and at such places in the work, and at such times and seasons, as the commissioner or the superintendent and engineer may direct.

COMPENSATION.

And it is hereby further mutually agreed that, the said party of the first part will perform the work embraced in this contract, and that the commissioner in charge will pay out of the moneys appropriated therefor, in full compensation for the same, the following sums at the following rates: For rubble masonry, laid in hydraulic mortar, at the rate of six dollars per cubic yard.

The prices above specified are to be in full compensation for all materials and labor required to put the same into the work herein contracted for, and complete the whole in all respects as provided in this contract.

MATERIALS FURNISHED BY COMMISSIONERS.

And it is also hereby further mutually agreed that the aforesaid party of the first part shall receive and use, in the work herein contracted for, such timber, stone, iron and other materials as shall be

furnished by the commissioners, and allow therefor such sum or sums as said materials have cost said commissioners, and the value thereof shall be deducted from the total amount of work done.

ENGINEER TO DETERMINE QUALITIES.

And to provide for the speedy and just settlement of the contract, and to prevent disputes, it is hereby further mutually agreed that the superintendent and engineer, for the time being in the employ of the commissioners on the work herein contracted for, shall, in all cases, determine the amount or quantity of the several kinds of work included under this contract, and the full compensation to be paid therefor, and within sixty days after the work, in all respects, shall have been completed according to the terms and conditions of this contract, shall present a final account and estimate of the same to the commissioner, who shall review, and, when satisfactory, approve and pay the same.

FINAL ACCOUNT OF WORK AND HOW TO BE SETTLED.

And it is further agreed that in case of any misunderstanding or disagreement between the superintendent and engineer and said party of the first part, in regard to making up the final account of work on said contract, the said account shall be referred to the commissioner, who shall examine the same, and decide whether it is made up according to the strict terms of the specifications and contract, and such decision shall be final and conclusive.

ALTERATIONS AND DIRECTIONS TO BE COMPLIED WITH.

And the said party of the first part hereby agrees to perform all the work contracted for, as specified in this contract; but any alteration in the form, dimensions, location or manner of doing work ordered by the commissioners and superintendent and engineer shall be made as directed, and when the several quantities of work, or any of them, shall be increased beyond the amount or amounts exhibited at the time of letting this contract, such increase shall be paid for at the rates herein provided for the same class of work, and whenever the several quantities of work, or any one of them, shall, in any respect, be diminished below the amount or amounts exhibited at the time of letting this contract, the party of the first part hereby agrees to perform the remaining work at the prices stipulated in this contract, and to make no claim for damages in consequence of such increase or diminution.

PER CENT TO BE RETAINED OUT OF ESTIMATES.

And it is hereby further agreed that, fifteen per cent of the amount of work done, or materials furnished under this contract at the contract price thereof, shall be reserved by the commissioner until the whole work, which is the subject of contract, shall be full and entirely completed.

MONTHLY ESTIMATES.

And it is further agreed that, within fifteen days from the expiration of each month in which the work herein contracted for shall have been prosecuted according to the terms and conditions of this contract, the aforesaid commissioner will pay therefor such sums as shall not, together with former payments, exceed the amount actually due under this contract according to the estimate of the superintendent and engineer, except the sum due on the final account; but if at any time after such payments have been made the commissioners or superintendent and engineer employed on the work shall discover that any of the work included in the estimates, on which such payments have been made, has been performed in an unworkmanlike manner, or contrary to the said specifications, the commissioner or superintendent and engineer shall direct the party of the first part to take down and rebuild such work in the manner required by the said specifications, and no further payments on this contract shall be made until the said party of the first part shall comply with said directions.

HOW ESTIMATED.

No materials shall be estimated until delivered on the work. And within thirty days after the work, in the opinion of the aforesaid superintendent and engineer, shall have been completed as above, the aforesaid commissioners shall pay the said party of the first part the sum which according to said final account shall remain due, and take a receipt in full for the same.

CONTRACT TO BE COMPLETED.

Provided, however, and it is expressly understood and agreed on the part of the said party of the first part, that the work hereby specified and embraced in this contract shall be fully performed and completed on or before the twentieth day of November, in the year one thousand eight hundred and seventy-one.

IN CASE THE WORK SHALL BE SUSPENDED.

And it is further mutually understood and agreed that, in case the execution of this contract shall be suspended by the parties of the second part at any time and for any cause, no claim for prospective profits on work not done shall be made or allowed; but the party of the first part shall have a right to complete the work when the party of the second part shall order it to be resumed.

ABANDONMENT OF CONTRACT.

And it is further agreed that if, in the opinion of the superintendent and engineer, the said party of the first part shall refuse or neglect to prosecute the work embraced in this contract, or shall violate any of its provisions, or perform the work in an improper manner, the said superintendent and engineer may certify the same, in writing, to the board of commissioners; and in such case the said board, or a majority of them, shall have power to certify and declare that this contract has been violated and abandoned by the said party of the first part, and on the making of such certificate the said contract shall be deemed abandoned, and said board may proceed to contract for said work with any other person.

ARDENT SPIRITS.

And the said party of the first part further promises and agrees not to give or sell, or allow to be given or sold by any agent or agents in his or their employ, any ardent spirits to the workmen or any other person on or near the location of said building, or allow any to be brought on the work by the laborers or any other persons. And the said party of the first part hereby further promises and agrees to perform the several stipulations of this contract by himself and workmen under his immediate superintendence, and not by a sub-contract or sub-contractor.

DELAYS IN PROGRESS OF THE WORK.

And it is hereby further understood and agreed; between the parties to this contract, that in case of delays arising in the progress of the work, either from neglect or inability on the part of the said party of the first part, which may retard the completion of the work, said commissioners may direct the superintendent and engineer to employ a sufficient force and purchase the necessary materials to complete the work, or such portion of it as may be necessary and according

to specifications hereunto annexed; and all expenses incurred in the performance of such work shall be paid for by the said commissioners, on the affidavit of the superintendent and engineer, and the amount shall be charged to account of the aforesaid party of the first part.

JOHN KILEY. [L. s.]

C. C. B. WALKER, [L. s.]

A. H. MILLER, [L. s.]

STEPHEN T. ARNOT, [L. s.]

F. H. ATKINSON, [L. s.]

Commissioners.

[Fifty cent rev. stamp,
canceled.]

SPECIFICATION FOR FOUNDATION WALLS OF STATE REFORMATORY, AT ELMIRA, NEW YORK.

The foundation walls shall be composed of sound, well-shaped stone, and such as shall be approved by the superintendent and engineer, not less than eight inches in thickness and three feet area of bed; the smoothest and broadest bed shall in all cases be laid down, and when the setting bed is rough and uneven, the projecting points shall be hammered off. All high, projecting points on the top bed shall also be hammered off, so as to give the succeeding stone a firm bearing.

In all cases, the bed shall be properly prepared by leveling up before the next stone is laid, but no leveler shall be placed under a stone by raising it from its bed. One-fourth of the wall shall be composed of headers that shall extend through the wall; two full, base courses will be required on the top of the concrete, first base five feet eight inches in width; second base, four feet eleven inches, and wall four feet five inches on base, with two inches batter, making four feet three inches at level of surface, on the outside of the building.

The whole of the wall shall be laid in hydraulic mortar, composed of the best quality of cement and clean, sharp sand, in such proportions as the superintendent and engineer may direct, and the walls shall also be thoroughly grouted with similar materials, as above specified for mortar, each course to be grouted as fast as laid and cut off, shall be made every eight feet in each course, so that the grouting shall be done in sections of that length. All shall be smoothly laid on the outside, and the top of the walls shall have two coats of strong cement laid upon the top of the walls, and raised in the center

so as to protect it from the elements. All the holes, etc., that may be required in the foundation walls shall be made by the contractor as may be required and as may be set forth on the respective drawings for drains, pipes, etc. It will be observed by the contractors that no breaks are made in this foundation wall, for the pilasters of the front, and that good flag-stone, not less than four inches in thickness, shall be laid on the top of the wall, so as to joint under the buttresses, in order to protect the said wall.

NOTE—It will be observed by the contractor that there will be a sub-cellar under the guard room part of the building, the walls of which will be built in connection with the other walls of the foundation, and same as set forth for them as regards base, etc. The face of the west wall and that of the area wall, both of which are exposed to view in the area, shall be laid in regular courses, not less than one foot in thickness (the course of stone in this foundation wall, over the lintel of doors and windows, shall be fourteen inches high. See drawing), and shall have good beds and builds, and shall be of sufficient width to extend into the walls so as to bind the same. A draft shall be cut on the face of the stone to set them by, and the other portion of the face shall be rock-dressed. This kind of work shall commence on the level of the area floor and be built up the heights set forth in the drawing; all this work shall be neatly pointed up where exposed to view. The middle of the octagon on the north-west corner of cellar shall be lined with paving brick laid in cement.

The area walls shall be built in the best possible manner, and shall be plastered smooth on the outside, and shall be built even with the surface of the ground at 70x base line flues. One on each side shall be built as set forth in the drawings. Shall be lined with brick, joints stuck flush, flues twelve by sixteen inches in the clear, with soot drawers three feet from floor line. Cut stone cells and lintels for the tier windows, and the doors shall be of stone cut as per working drawings, all hammer-dressed and set in best manner. "See bill of cut stone." Four blocks of cut stone shall be furnished and used for the ends of the bearing beams of the wrought iron floor. Said blocks shall be two feet long, one foot six inches wide and six inches thick, and shall be set the heights indicated on the drawings. Blue stone flag shall be set on the offset of the wall and placed so that the wrought iron beams can rest upon the same. Said blue stone flag shall be twelve inches wide and not less than three inches in thickness, all set level and true for the reception of the beam of the floor.

The foundation walls shall be laid at the following rate, viz., From the 18th to the 30th of September, 1871, at the rate of fifty cubic yards per day. From the 30th of September to the 21st of October, 1871, at the rate of seventy-five cubic yards per day. And from the 21st of October, 1871, to the completion of the contract, at the rate one hundred cubic yards per day.

SUPPLEMENTARY CONTRACT.

Additional articles of agreement, made and concluded the eleventh day of November, in the year eighteen hundred and seventy-one between John Kiley, of the city of Rochester, county of Monroe, and State of New York, of the first part, and the building commissioners of the State Reformatory at Elmira, New York, as by law appointed, of the second part, whereby it is covenanted and agreed as follows : The said John Kiley, party of the first part, hereby covenants and agrees to furnish all materials, which shall be of a sound and good quality, and perform all the labor necessary to construct and finish, in every respect in the most substantial and workmanlike manner, the walls for the yard of the State Reformatory, as the same are located at Elmira, New York. The construction of the aforesaid work shall be in all respects according to the specifications hereunto annexed, which are to be considered as a part of this contract ; and it is hereby further mutually agreed that the said party of the first part will perform the work embraced in this supplementary contract, and also that the commissioners in charge will pay out of the moneys appropriated therefor, in full compensation for the same, the following sums at the following rates : For rubble masonry, laid in hydraulic and quick lime, at the rate of ten dollars per cubic yard ; for coping and water table at the rate of seventy-five cents per superficial foot, all to be according to the plans and specifications prepared therefor ; and it is mutually provided and agreed, by and between the parties to this contract, that in the event the parties of the second part are unable to comply with this agreement by reason of want of funds because of failure to make the requisite appropriation by the State for that purpose, that then the party of the first part shall make no claim for damage on that account, and hereby relinquish any claim for that reason. But in the event that the work under this agreement is suspended for lack of funds, on the part of the party of the second part, this agreement is still to continue in full force, and is not to be rescinded ; but so soon as the parties of the second part are in funds, by State appropriation or otherwise, the performance of this agreement, by the party of the first part, is to proceed as if it had not been suspended or interrupted.

And it is further mutually provided and agreed by and between the said parties that, in the progress and performance of all the work under this agreement, and furnishing of materials, all the provisions, conditions and stipulations contained in the original agreement

between the same parties, dated August thirty-first, eighteen hundred and seventy-one, are to apply, to become, and are hereby made a part of this agreement, except as herein otherwise provided.

And it is further provided and agreed that any per cent of moneys to be retained by the parties of the second part, as a security for the performance of the party of the first part, shall be retained by them and kept as a fund, to abide the event of such performance, and are not to be otherwise used, and as soon as it is decided that such contract is fully performed, said per centage is to be paid over to the party of the first part. And it is further provided and agreed that, in the event that the performance of this agreement shall cease, or is relinquished by the said parties by mutual consent, any and all per centage of moneys retained as security for performance shall be paid over, down to the time of such relinquishment. The above mentioned work shall be performed subject to the inspection and supervision of the architects, and superintendent, and engineer.

JOHN KILEY.

STEPHEN T. ARNOT,

A. H. MILLER,

C. C. B. WALKER,

JOSEPH WARREN,

F. H. ATKINSON,

Building Committee.

[15 ct. Rev. Stamp,
cancelled.]

SPECIFICATIONS FOR YARD WALL, GATEWAYS, WATCH-TOWER, ETC.,
ETC., FOR THE STATE REFORMATORY, ELMIRA, NEW YORK.

ELMIRA, *November 9th*, 1871.

The foundation shall be composed of sound and well-shaped stone, and such as shall be approved by the supervising architect or superintendent and engineer, not less than six inches in thickness. The smoothest and broadest bed shall in all cases be laid down, and when the setting bed is rough and uneven the projecting parts shall be hammered off; all high, projecting points on the top bed shall be hammered off, so as to give the succeeding stone a firm bearing. In all cases the bed shall be properly prepared by leveling up before the next stone is laid; but no leveler shall be placed under a stone by raising it from its bed. One-fourth of the wall shall be composed of headers, that shall extend through the wall; the stone shall be well bedded on the bottom of the trenches, and shall be carried up with

a batter, as set forth on the drawings, to the line of the grade, and shall be smoothly laid on the outsides, so as to be secure from the effects of the frost, and shall be laid in best quality of cement, with clean, sharp sand, in such proportions as the supervising architect or superintendent and engineer shall direct. Each course shall also be thoroughly grouted with similar materials as above specified for mortar. The superstructure of this wall shall be laid with the building-stone from the quarry of Latta Brook, and shall be what is called rubble wall, with face on both sides, and neatly pointed as the work progresses, and made to conform to the drawings in every respect. The work shall be well bonded, and stone to be selected with good beds and builds and faces, and shall be laid upon their freccory beds in best manner, by regular masons, in best kind of cement and quick-lime mortar, of such quality as shall be approved of by the supervising architect or the superintendent and engineer.

The buttresses of the walls shall be built on the outside of the same, and shall commence on the outside of said foundation walls at the grade line, and extend up the height and diminish as set forth in the drawings. Said walls shall be skreed off level and true, with cement, ready for the reception of the stone coping. Good flat stone shall be laid to extend the whole thickness of the walls, and placed so as to come under the joints of the coping of the wall. The contracting mason will notice that the courses of stone of equal thickness shall be made to project under the coping stone on the outside of the wall. (See section of the wall.)

These may be from four to six inches thick, and made to project three inches each. The walls inclosing the entrances or gateways shall be built in the same manner as set forth for the other walls, no buttresses being required on them. These walls shall be carried the same height and coped in the same manner as set forth for the other walls. The water table on the outside and on the batter of the foundation shall be formed of selected flag stone, with straight, square edge, not less than six inches in thickness, and twelve inches in the wall, and set so as to form a drip or water shed of half an inch. All the leading joints shall be well made, and said water table shall be made to butt or die against the sides of the buttresses.

The walls are to be made to butt or die against the sides or the turret of the Reformatory, all to be neatly fitted to the stone work of the same.

The watch towers, seven in number, shall be built as set forth

on the drawings, will be octagonal in form, and shall be built in the manner and the height set forth, and the inside of the towers shall be laid smooth and neatly pointed up, and the work carried up on the inside of the roof to the underside of the wall-plate of the roof.

The freize on the outside, under the cornices, shall be formed by having the stone work of the same project two inches from the face of the other work.

ANCHORS, ETC.

The cornice above the freize shall be of cast iron, and the subject of another contract; but the contracting mason will build into walls, etc., all anchors, etc., that may be furnished to him for the purpose of securing the cast iron cornice.

STAIRS.

The stairs on the inside of the towers shall be of iron, and the subject of another contract.

Loops or windows in the upper section of the watch towers shall be made as set forth in the drawings, with the jamb splayed on the outside, with sill and lintel of cut stone. (See cut stone.) The frames of these windows shall be set as required, and will be furnished with sash, which will be the subject of another contract. The jambs of these openings shall be neatly dressed; the jambs of the doors to these watch towers, both on the yard and top of the wall, shall be neatly dressed and made to conform with the drawings in every respect.

The drains from each of the watch towers shall be put in by the contracting mason, as set forth on the drawings, these drain tile or pipe to be furnished to the contracting mason. This drain tile shall be put in so as to accommodate a water-closet or urinal in each of the watch towers if required.

The cut stone for the gateways, the doorways and the sills and lintels for the loops or windows in the watch towers; hooks, blocks, etc., that may be required for the doorways, etc., will be the subject of another contract, but such cut stones shall be set by the contracting mason, and in case the work should be let by the foot or the yard, the said cut stone shall be measured into the rubble wall.

SPECIFICATIONS FOR COPINGS FOR YARD WALL, GATEWAYS, WALKS,
ETC., LANDING FOR WATCH TOWERS, ETC., FOR STATE REFORMATORY,
ELMIRA, NEW YORK.

ELMIRA, *November 9, 1871.*

Said walls shall be covered with best quality of flag, of such quality as shall be approved by the supervising architect and superintendent and engineer, and shall be from six to eight inches in thickness and five feet in width. The outside edges shall be dressed square and reduced to a regular thickness by leveling the top edge; all the joints shall be cut true and well fitted, and the joints filled with fine cement and neatly pointed up; the rough sides of the stone flagging shall be laid up. The landings opposite of doors in the upper section of the watch towers shall be the width indicated on the drawings, and shall be neatly dressed to the required form, and shall be supported by cut stone corbels as per drawing. The floor of the upper sections of the watch towers shall be formed of six-inch flagging cut out for the well holes, etc., of the stairs and neatly fitted as required by the drawings. These landings shall have a bearing of not less than six inches on the walls before being built into the walls. This coping shall be neatly fitted to the turrets of the Reformatory; all of said coping shall be well set on the walls and bedded in cement, and made a first-rate job in every respect when done.

[Copy.]

“ B.”

CONTRACT WITH GEO. W. ALDRIDGE—SUPERSTRUCTURE.

Articles of agreement made and concluded this twenty-eighth day of December, eighteen hundred and seventy-one, between George W. Aldridge, of the city of Rochester, county of Monroe, and State of New York, of the first part, and the Building Commissioners of the State Reformatory at Elmira, New York, as by law appointed, of the second part, whereby it is covenanted and agreed as follows: The said George W. Aldridge, party of the first part, hereby covenants and agrees to furnish all the stone and brick work between the top of the foundation wall (said wall being on a level with the surface of the ground) and the line of cornice, including cells, required in building the superstructure of the State Reformatory, as the same is located at Elmira, New York. The construction of the aforesaid work shall be in all respects according to the drawings and plans exhibited on the day of the letting of the work, and according to

the specifications hereunto annexed, which are to be considered as part of this contract.

And it is further agreed that this contract, in every respect, shall progress in such order, and at such times and seasons, and in such places in the work, as the commissioners or the superintendent and engineer may direct. And it is hereby further mutually agreed that the said party of the first part will perform the work embraced in this contract, and, also, the commissioners in charge will pay, out of the moneys appropriated therefor, in full compensation for the same, the following sums, at the following rates, viz. :

For dimension stones, cut and set in the wall, two dollars and twenty-five cents per superficial foot.

For irregular block work, cut and set in the walls, eighty-five cents per superficial foot.

For brick work, laid and measured in the walls at twenty brick to the cubic foot, thirteen dollars and fifty cents per thousand.

The prices above specified are to be in full compensation for all materials and labor required to put the same into the work herein contracted for, and to complete the whole, in all respects, as provided in this contract, and to provide for the speedy and just settlement of this contract, and to prevent disputes ; it is hereby further mutually agreed that the superintendent and engineer for the time being, in the employ of the commissioners, on the work herein contracted for, shall, in all cases, determine the amount or quantity of the several kinds of work included in this contract, and the full compensation to be paid therefor, and within sixty days after the work, in all respects, shall have been completed according to the terms and conditions of this contract, shall present a final account and estimate of the same to the commissioners, who shall review, and, when satisfactory, approve and pay for the same.

And it is further agreed that, in the case of any misunderstanding or disagreement between the superintendent and engineer and said party of the first part in regard to making up the final account of work on said contract, the said account shall be referred to the commissioners, who shall examine the same and decide whether it is made up according to the strict terms of the specifications and contract, and such decision shall be final and conclusive.

And the said party of the first part hereby further agrees to perform all the work contracted for as specified in this contract, but any alterations in the form, dimensions, location or manner of doing work

ordered by the commissioners, architects, or superintendent and engineer shall be made as directed, and when the several quantities of work, or any of them, shall be increased beyond the amount or amounts exhibited at the time of letting the contract, such increase shall be paid for at the rates herein provided for the same class of work; and whenever the several quantities of work, or any one of them, shall in any respect be diminished below the amount or amounts exhibited at the time of letting this contract, the party of the first part hereby agrees to perform the remaining work at the price stipulated in this contract, and to make no claim for damages in consequence of such increase or diminution.

And it is further mutually agreed that fifteen per cent of the amount of work or materials, furnished under this contract, at the contract price thereof, shall be reserved by the Commissioners until the whole work, which is subject of the contract, shall be fully and entirely completed.

And it is further agreed that, within fifteen days from the expiration of each month in which the work herein contracted for shall have been prosecuted according to the terms and conditions of this contract, the aforesaid commissioners will pay therefor such sums as shall not, together with former payments, exceed the amount actually due under this contract, according to the estimate of the superintendent and engineer, except the sum due on the final account. But, if at any time after such payments have been made, the commissioners, or the superintendent and engineer employed on the work, shall discover that any of the work included in the estimates on which such payments have been made has been performed in an unworkmanlike manner, or contrary to the said specifications, the commissioners, or the superintendent and engineer shall direct the party of the first part to take down and rebuild such work in the manner required by the said specifications, and no further payments on this contract shall be made until the said party of the first part shall comply with said directions.

No material shall be estimated until delivered on the work.

And within sixty days after the work, in the opinion of the architect and superintendent and engineer, shall have been completed, as above, the aforesaid commissioners shall pay the said party of the first part the sum which, according to said final account, shall remain due, and take a receipt in full for the same.

And it is further mutually provided and agreed, by and between

the parties to this contract, that in the event the parties of the second part shall suspend the execution of this contract by reason of want of funds to carry on the work, because of failure to make the requisite appropriation—by the legislature of the State—for that purpose, that then the party of the first part shall make no claim for damages on that account, and hereby relinquish any claim for that reason, but in the event that the work under this agreement is suspended for lack of funds on the part of the party of the second part, this agreement is still to continue in full force and is not to be rescinded, but as soon as the parties of the second part are in funds—by State appropriation or otherwise—the performance of this agreement by the party of the first part is to proceed as if it had not been suspended or interrupted.

And it is further provided and agreed that in the event that the performance of this agreement shall cease, or is relinquished by the said parties by mutual consent, any and all per centages of moneys retained as security for performance shall be paid over to the party of the first part, down to the time of such relinquishment.

And it is further agreed that if, at any time, any overseer or workman employed by the party of the first part, shall be declared unfaithful or incompetent by the superintendent and engineer having charge of the work embraced in this contract, or by the commissioners, the said party of the first part, on notice of such declaration, shall forthwith dismiss such person and shall no longer employ him on any part of the work.

And the said party of the first part hereby further promises and agrees to perform the several stipulations of this contract, by himself and workmen under his immediate superintendence, and not by a sub-contract or sub-contractor, except by consent of the party of the second part.

And it is hereby further understood and agreed between the parties to this contract, that in case of delays arising in the progress of the work, either from neglect or inability on the part of the said party of the first part, which may retard the completion of the work, said commissioners may direct the superintendent and engineer to employ a sufficient force and purchase the necessary materials to complete the work or such portions of it as may be deemed necessary and according to the specifications hereunto annexed, and all expenses incurred in the performance of such work shall be paid for by the said commissioners, on the affidavit of the superintendent and engi-

neer, and the amount shall be charged to the account of the aforesaid party of the first part.

And it is further agreed that in the event of the suspension of the work mentioned in this contract, for the period of six months, by reason of the Legislature failing to make the necessary appropriations to carry on the same, the party of the second part shall direct the superintendent and engineer to make up an estimate and account to the time of such suspension and present to the commissioners, who shall review, and, when correct and satisfactory, shall proceed, if in funds, to pay the same, including the per centage reserved up to the time of such suspension.

All the work embraced in this contract shall be performed subject to the inspection and supervision of the architects and the superintendent and engineer.

GEO. W. ALDRIDGE.

C. C. B. WALKER, STEPHEN T. ARNOT,
ABRAM H. MILLER, JOSEPH WARREN,

*Building Commissioners under chapter 427, Laws
of 1870, for the erection of the State Prison or
Industrial Reformatory established at Elmira,
Chemung county, N. Y.*

SPECIFICATIONS.

In the following specifications and notes, the different parts of the building are denominated as follows:

Guard Room.—The main center building, containing a sub-cellar, prison, kitchen, guard room proper (from whence its name), and chapel. The center of this forms the center of the whole structure.

Pavilions.—The four ends of wings, surrounded by four octagonal turrets, each with cornice and roof higher than wings.

Prison Part are the long corridors (containing cells) between pavilions and between guard room and pavilions.

Specifications for cut stone for State Reformatory to be erected at Elmira, N. Y., for commissioners of the same.

The stone to be of the kind hereafter set forth.

Ashlar.—The ashlar shall extend from the level of the present foundation walls up to the under side of the cut stone water table, and shall be a rusticated ashlar, cut on a batter, as set forth on the

drawings. A square rustic as per working drawings, with fine tooled *draught* on margin, forming a continuous panel on each course of ashlar. The face of the panel within the lines of the draught or margin to be rock or cleavage face, and to be made as bold and prominent as possible. All the beds, builds and joints to be cut true. All the vertical joints shall be so placed as to form a good bond, and as the architect or superintendent and engineer may direct. Ashlar not less than nine inches in thickness, including the batter. Holes for clamps shall be cut as may be directed. All ashlar to be neatly fitted at internal angles and made to intersect. The ashlar blocks at the breaks of the piers shall be as thick as may be required to form the joints as near the face of the receding ashlar as possible. The ashlar blocks forming the base of the turrets shall be of sufficient thickness so as to form heads to said stone, not less than twelve inches, measuring on the bed of the stone. It will be observed by the contracting stone-cutter that the ashlar at the base of the turrets extends above the line of the ordinary water table, in view of which the proper stops will have to be cut to receive the water table and also the stone or brick of the face work, as the case may be.

The contracting stone-cutter will notice that six of the turrets start from the ground with square bases, the two ten-feet ones (one on each side of the guard room) and the four twelve-feet ones on the north and south of the interior of the court. Five of said turrets will have doorways in them of cut stone. These doorways shall be of cut stone, fine tooled, and made as per detail and working drawings, with sills extending the whole thickness of the walls and the lintel or hoods over the doors, and will be made fair with the finish on the inside of the walls. Suitable wash will be cut on the sills and a wash on the outside of the lintel or hood. All this work to be fine tooled, and the water table and ashlar to be made to stop against it. Four doorways on the elevations opening on the court, said doors being formed under the windows of prison part of the building; all to be as and set forth on the detailed drawings, and all of said work will be fine tooled, and will consist of sills extending to inside of finish walls, being the proper width and flush, with jambs with proper wash thereon, and shall have set under the same a platform, to be set one inch from the surface of the ground; the jamb-stones being of sufficient width to extend half an inch from the face of the finished plastered wall, and shall be moulded as set forth on the drawings, and cut in connection with the ashlar and the water table and

the sill of the window over the same, all of which is to be included in this work as set forth in this specification. It will be observed that the rustic of ashlar will be returned against the jambs of the doorways and the water table moulding also. The sill of the window over the said doorway shall be cut with a rise in the center, so as to shed the water from the same on the sides of the doorway.

It will be observed that the windows and the doorway in the guard-room part of the building commences below the line of the *water-table* and ashlar, and that the windows of the kitchen story of this part of the guard-room building will require sills as set forth, and an adjustment of the ashlar and moulded water table, both of which will be returned upon themselves and cut and stopped upon the face of the jamb-stones, which shall extend through to the face of the window-frame. Window-sills shall be cut with proper wash, etc., as as per working drawings. The doorway into the kitchen will be treated in the same manner as set forth for the four windows, with sill extending through the whole thickness of the wall, with wash, etc., cut upon the same. All the work shall be fine tooled.

Water Table.—The water table shall be cut as per working drawing, and shall extend on all sides of the building, and be cut with stops and returns, etc., where required, and with top and bed of same cut true, and to be in suitable lengths, as architects may determine, all to be fine tooled, and shall have suitable holes cut for clamps and holdfasts, as may be directed. It will be observed that the ashlar and water table of the turrets extends above the line of the ordinary water table, and that proper stops will have to be cut upon the same, to meet the face of the neat work of the wall, bricks or stone, as the case may be.

Cut Stone Work below the line of the rusticated ashlar shall be as follows, to wit: The face of the west wall, forming rear of the sub-cellar in guard-room part of the building, and the area walls, both of which will be exposed to view, shall be built in regular courses, not less than twelve inches in height, with cut beds and builds, and of sufficient thickness to extend into the wall so as to form a good bond to the same. A draft shall be cut on the face of said blocks to set them by, and the other portions of the face shall be rock or cleavage face, and made as prominent as possible. This work shall commence on the level of the area floor and build up the height set forth in the dimensions. All this work shall be in stone of sufficient lengths to make a good bond, and as the articles may determine.

Area Walls shall be faced in the same manner as set forth for the above-named wall.

The sills and lintels for the two windows and doors shall be of cut stone, made as per working drawing, all hammer dressed. Four blocks of cut stone for the ends of the wrought iron bearing beams shall be furnished, two feet long, one foot six inches wide and eight inches in thickness, all neatly dressed.

The coping of the area walls shall be of cut stone, as per drawings, all hammer dressed, ten inches thick.

The walls above the water table for the entire building will be of irregular block work, laid up with stone from six to twenty inches in length and height, and an average thickness in the walls of sixteen inches, all to have the beds and builds squared, so as to lay with a joint not exceeding one-half of an inch, the face of the stone to be left rock face or finish, and simply pitched off at the edges; all joints must be vertical one with another, and all beds must be horizontal one with another, and laid by first-class mechanics, and the joints laid flush or struck as directed by the architects or superintendent and engineers. Stone shall be laid on their natural beds.

There shall be a one-inch chisel margin draft cut on all angles and corners of the piers and window jambs, and the reveals of the window jambs shall be chisel-dressed back to the window frames.

All the cut-stone work of this specification shall be subject to the inspection of the supervising architect, or the superintendent and engineer, before being set in the building.

The whole of the brick and stone shall be laid in hydraulic mortar, composed of the best quality of cement and clean, sharp sand, in such proportions as the supervising architect or superintendent and engineer may direct.

The stone used shall be of the kind known as the Corning or Lindley stone, and shall be free from all mineral or vegetable matter.

SPECIFICATIONS FOR BRICK WORK OF THE WALLS OF THE SUPERSTRUCTURE OF THE STATE REFORMATORY, TO BE ERECTED AT ELMIRA, N. Y., FOR COMMISSIONERS OF SAME.

Said brick work shall be laid with the best quality of *hard burnt brick*, all laid in running bond (every six course, headers), in best quality of cement mortar; all the joints struck flush where exposed to view, on walls not set forth to be plastered; all the cut stone, ashlar and other stone facings shall be backed up with brick, and

said brick walls shall be commenced at the points set forth for the termination of the stone work, and shall be built up the respective heights set forth for the brick wall on the drawings; all the walls shall be built solid and slushed in with mortar, and shall be built straight and true with close joints, and the work shall have nine courses to two feet in height; all the brick used in the construction of these walls shall be well soaked with water before being put in the walls; all the arches over window and door openings, over lintels, etc., shall be built as directed, in the best manner; all cut stone, ashlar and facings shall be secured by anchors and clamps in the best manner and as may be directed. The anchors at the end of the main corridors, north and south of the guard-room part of the building, shall be built as set forth on the drawings; all iron work, wrought and cast, shall be built in the walls as set forth, and as may be required and directed.

The contracting mason shall brace and secure all walls in such a manner as to keep them in proper position, and shall cover the work so as to protect it from rain, sun and the effects of frost in winter. All timber, boards and plank that may be required for this purpose shall be furnished and used by the contracting mason. All centers that may be required for arches, etc., shall be furnished and set by the contracting carpenter, and all the covering cut stone, etc., shall be done by the contracting carpenter.

The mortar used shall be made of the best quality of quicklime and clean, sharp sand and fresh ground cement, and used in such proportions as shall make a first-rate cement mortar, in the judgment of the supervising architect, or superintendent and engineer.

SPECIFICATIONS.

Specifications for cast and wrought iron work for the fire-proof floors of kitchen, guard room and chapel of what is called the guard room part of the building for the State Reformatory to be erected at Elmira, N. Y., for commissioners of the same.

Cast Iron Columns shall be made as set forth on the accompanying drawings. Columns in the sub-cellar, one and one-quarter inch skin, and shall be sixteen inches in diameter, top and bottom, moulded cap, and shall stand upon cast iron base, two inches thick and twenty inches square. The columns of the kitchen shall be sixteen inches at bottom, and fifteen inches at top, moulded cap and made to connect with flanges to be secured together with screw bolts, one and

one-quarter inches in diameter. Said flanges shall be one and one half inches thick, and skin of column one inch thick, shall have moulded caps cast upon them same as those for sub-cellar. The columns of guard room shall be fifteen inches in diameter at bottom and thirteen inches at top, shall be cast with flange on bottom, one and one-half inches thick, bolted to flange on column below and shall have flange on top one and one-half inches thick, made to serve as a seat for the wrought iron bearing beams. These columns shall have a skin of one inch thick; these columns shall have moulded bases, shaft plain up to the surface moulding. Incut on base moulding and incut under the carved moulding of the sub-base. The upper part of the shaft shall be fluted with reads in lower part of same, returned on the top ends. Incut and ornamentation under the neck moulding of the capital. The capital shall be made to slip over the core of the columns, and rest upon the neck moulding of the same (see note). Said capital shall be made from a full size drawing, to be furnished by the architect. The columns on the north and south sides of the guard rooms for the support of the iron lintels and the wall above, shall be same design as set forth for columns described above. All the base plate for the columns of the sub-cellar shall be recessed for the columns. The tops and bottoms of the columns and flanges of the same shall be cut to the length in a lathe, and all the required bolt holes made as may be required by the drawings.

Note.—The capital of the guard room columns shall be moulded in plaster and sent to the architect at Albany for his inspection before the carved cap is made. All to be done at the cost of the contracting iron founder.

Lintel.—The cast iron lintels over the columns on the north and south sides of the guard room shall be made from working drawings, and will consist of bottom plate and two upright flanges, with solid flanges across the same, four in each piece of lintel, one at each end and fitted with two screw bolts in each, so as to make a continuous lintel of the same. The east and west ends of the lintels shall have skew backs cast in them for the purpose of receiving and discharging arches. These lintels shall have rule joints cast on the lower arises with suitable stops at the columns, and the inside face next the guard rooms shall be paneled with raised moulding between the columns. No parts of these lintels shall be less than one inch in thickness, and the joints planed, fitted and screwed together with bolts. The moulding for the surface of the lintels shall be platned on and secured by screws.

and fitted with two screw bolts in each, so as to make a continuous lintel of the same. The east and west ends of the lintels shall have skew backs cast in them for the purpose of receiving and discharging arches. These lintels shall have rule joints cast on the lower arises with suitable stops at the columns, and the inside face next the guard rooms shall be paneled with raised moulding between the columns. No parts of these lintels shall be less than one inch in thickness, and the joints planed, fitted and screwed together with bolts. The moulding for the surface of the lintels shall be platned on and secured by screws.

Cast Iron Ornamental Fretts shall be cast and put in by screws on each side of the bearing beams, shall be put on with screws tapped into the wrought iron bearing beams. These will be cast in plates not to exceed half an inch in thickness, and perforated, and in suitable lengths. To be made from full size working drawings.

Sill Course for north and south openings of the guard room shall be as set forth on the drawings, with joints under the center of the columns, with a moulded nosing and a riser on the prison side. The step part shall be one inch in thickness, and the riser part half an inch, and shall be well secured to the wall (see working drawings). The upper surface of the sill shall be fluted as may be directed; this sill course shall have such holes etc., made in them as may be directed by the architects.

Rolled Wrought Iron Beams for the kitchen guard room and chapel floors. The beam to be used will be known as the "Wadsworth wrought iron beams." The bearing beams for the support of the kitchen floor will be formed of two twelve and one quarter inch heavy beams, bolted together with cast iron chairs; said beams double, to weigh one hundred and twenty pounds to the foot. The bearing beams of the guard room floor shall be formed of two twelve and a quarter inch heavy beams, bolted together with chairs, etc., same as set forth for those of the kitchen floor.

The bearing beams of the chapel floor shall be formed of two twelve and one-quarter light beams, weighing eighty-three pounds to the foot double. All these bearing beams shall have chairs of cast iron, furnished with them, and secured with one inch round bolts, one in every four feet of space. These beams shall have a bearing on the walls of not less than fifteen inches, and shall be bolted to the cast iron columns with one and a quarter inch bolts, and shall be furnished with anchors, one and a quarter inch round

iron, bolted on the ends of the beams, and to extend to within four inches on the outside of the wall. (See drawing.)

Floor beams of the kitchen floor shall be nine inch heavy beams, butted upon the bearing beams, and shall be tied together with bolted plates, and shall have a bearing on the walls of not less than eight inches. Said beams shall weigh thirty pounds to the foot. Floor beams for the guard room floor shall be nine inch heavy, thirty pounds to the foot, same as those for the kitchen.

Floor beams for the chapel floor shall be nine inch light beam, same in other respects as set forth for the kitchen floor. Said beams shall weigh twenty-three and a quarter pounds per foot. These beams shall have three-eighths inch holes drilled in the top flange three feet apart for bolts of sleepers.

Tie bolts.—Each bay of the floors shall have two lines of one inch round iron tie rods. These shall extend through from front to rear, and shall be placed a little below the center of the beams, and shall be well anchored into the walls of the building.

Anchors.—All the floor beams shall have holes in them near the ends for the purpose of anchoring to the walls, and suitable anchors shall be furnished and used.

Painting.—All these beams shall be painted in two coats of paint before being put into the building.

Setting, etc.—All these specified beams, anchors, etc., shall be delivered at the building, and set in their place in the building and made a first-rate job when done.

All the cast iron made under this specification shall be well fitted and made as set forth in these specifications, and shall be delivered at the building at Elmira, N. Y., and set up in their place in the building and made complete in every respect. All the iron work shall have two coats of paint before being set up in the building.

All the work of this specification shall be subject to the inspection of the supervising architect, or the superintendent and engineer, before set up in the building.

SPECIFICATIONS FOR CAST IRON WINDOW FRAMES FOR STATE REFORMATORY, TO BE ERECTED AT ELMIRA, N. Y., FOR COMMISSIONERS OF SAME.

Said window frames shall be made as set forth on the detail drawings, shall be cast in separate parts, and secured together by screws, as per drawings. The pulley stiles shall be planed, and the two

parting strips shall be planed on all sides and the inside edge of stop beads next to the sash. All of which will be put on and secured by screws. The circular heads of these window frames may have the stop heads and parting strips cast upon them, and those that are set forth to be planed shall be made to intersect with them. The sills shall be made of cast iron, and the pulley stiles and linings, etc., shall be secured to the sills by screws. The circular heads of the frames shall be screwed to the pulley stiles by flanges and screws. The pulleys used shall be the best quality of axle pulley in use, and shall be fitted to the pulley stile, and secured by screws in the usual manner. The moulding on the outside of the frame shall be of cast iron, made in suitable lengths and secured by screws to the window frames. It will be observed, by the contracting iron founder, that the sash shall be of wood and be made in three heights, the top and bottom sash hung with cords and weights, and the center sash made stationary, the circular sash in the head of the frame, and the two spandrils shall be stationary, and the outside stop beads of these may be cast upon the frames, but the inside stop beads put in with screws. These sash will stand in the same plane of the frame as the top sash.

All parts of this iron work shall be painted in two good and sufficient coats of best paint before being put in the building. These frames shall be set in their proper places in the building, and shall be securely braced by suitable timbers, so as to be kept plumb and true, during the erection of the walls around them.

The pulley stiles shall have suitable pockets put in them, as may be directed, with the pocket pieces neatly fitted and secured by screws. (See detail drawings.)

The other iron window frames that may be required in the building will be made similar to these set forth herein, and the drawings accompanying the same. Working drawings will be furnished for all the other windows.

SPECIFICATIONS OF WROUGHT IRON GRATINGS FOR LARGE WINDOWS OF STATE REFORMATORY, TO BE ERECTED AT ELMIRA, N. Y., FOR COMMISSIONERS OF SAME.

Said gratings shall be made in best manner, of best quality of American iron, and shall be of the following sizes, to wit: Upright bars, one and one-eighth inches in diameter; cross bars and semi-circular head, three and a quarter inches by five-eighths inches; and all the meeting rails or bars shall be three and a quarter inches by

three-eighths inches each, making the two rails three-quarter inches thick when together. It will be observed by the contractor that these gratings are made in three parts, and so adjusted as they may be put in after the erection of the building, and the meeting rails shall be riveted together, not less than four rivets in each bar, and the ends of the upright bars in the meeting rails shall be riveted into the counter-sunk holes for the same in the meeting rails, and the upright bars shall be made to fit and made tight in the rails of the same.

The irons for the support of these iron gratings shall be built in the walls at the walls, at the points indicated on the drawings, and shall be three and one-half inches wide by three-fourths thick, and shall be secured in three places by rivets one inch in diameter. These irons shall be made in two prongs for the most, and shall extend into the walls not less than fifteen inches. All these irons shall be built into the walls as directed.

All these gratings shall have two good and sufficient coats of red lead before being used in the building.

[Copy.]

“D.”

CONTRACT WITH JOHN KILEY FOR RUBBLE MASONRY.

Additional article of agreement, made and concluded the 30th day of July, 1872, between John Kiley, of the city of Rochester, county of Monroe and State of New York, of the first part, and the executive committee of the building commissioners of the State Reformatory at Elmira, New York, of the second part, whereby it is covenanted and agreed as follows: The said John Kiley, party of the first part, hereby covenants and agrees to furnish all materials, which shall be of sound and good quality, and to perform all the labor necessary to construct and to finish in every respect, in the most substantial and workmanlike manner, the masonry underneath and for the foundations of the cells, and also all other foundation walls under partition walls in the corridors at the State reformatory at Elmira, N. Y. The construction of the aforesaid work shall be in all respects according to the specifications hereto annexed, and to the directions of the engineer in charge. It is also understood that this agreement is supplementary to and an addition to an original contract between the party of the first part and the building commissioners of the State

Reformatory, dated August 31, 1871, and also to a supplementary agreement between the same parties, dated November 11, 1871.

It is hereby further mutually agreed that the said party of the first part will perform the work embraced in this supplementary contract, and also that the commissioners in charge will pay, out of the moneys appropriated therefor, in full compensation for the same, the sum of eight dollars (\$8) per cubic yard for rubble masonry, laid in hydraulic cement. And it is further mutually provided and agreed, by and between the parties to this agreement, that in the progress and performance of the work under this agreement and furnishing of materials, all of the provisions, conditions and stipulations contained in the original agreement between the party of the first part and the building commissioners of the State Reformatory, dated August 31, 1871, and of the supplementary contract between the same parties, dated November 11, 1871, are to apply, to become and are hereby made a part of this agreement, so far as the same are applicable, and except as herein otherwise provided. The above mentioned work shall be performed subject to the inspection, supervision and approval of the architects and the superintendent and engineer, and of such inspector or inspectors of masonry as shall be appointed by the said party of the second part, and shall be completed on or before the first day of December, 1872.

(Signed)

JOHN KILEY,

[L. S.]

Contractor.

C. C. B. WALKER,

[L. S.]

J. D. BALDWIN,

[L. S.]

S. C. TABER,

[L. S.]

C. D. CHAMPLIN,

[L. S.]

STEPHEN T. ARNOT,

[L. S.]

Executive Committee State Reformatory Commission.

SPECIFICATIONS

Of the manner of constructing the rubble masonry underneath and for the foundations of the cells, and all other foundation walls under partition walls in corridors, at the State Reformatory at Elmira, N. Y.:

The said foundation walls shall be composed of sound, well shaped and durable quarry stone, of such shape, dimensions and quality as shall be approved by the engineer or supervising architect. The

smoothest and broadest bed shall be laid down, and when the setting bed is rough and uneven the projecting points shall be hammered off; all high and projecting points on the top bed shall also be hammered off, so as to give the succeeding stone a firm bearing. In all cases the bed shall be properly prepared by leveling up before the next stone is laid, but no leveler shall be placed under a stone by raising it from its bed. The whole of the wall shall be laid in hydraulic mortar, composed of the best quality of hydraulic cement and clean, sharp sand, in such proportions as the superintendent and engineer may direct; and the wall shall also be thoroughly grouted with similar materials as above specified for mortar, if required by the said engineer. The stone shall be smoothly laid on the outside, and the top of the walls shall be carefully leveled and covered with a good coating of strong mortar.

[Copy.]

“ E.”

CONTRACT WITH GEO. W. ALDRIDGE FOR CUT STONE.

Additional article of agreement made and concluded the 30th day of July, 1872, between George W. Aldridge of the city of Rochester, county of Monroe and State of New York, of the first part, and the executive committee of the building commissioners of the State Reformatory at Elmira, New York, of the second part, whereby it is covenanted and agreed as follows: The said George W. Aldridge, party of the first part, hereby covenants and agrees to furnish all the materials, which shall be of sound and good quality, and perform all the labor to prepare and finish in every respect in a workmanlike manner, and in full accordance with the specifications for the same hereto attached, the cut dimension stone required for gateways and for the jambs, sills and lintels, for the loops or windows in the upper sections of the watch towers connected with the yard wall of the said State Reformatory at Elmira, and also the cut dimension stone required for the steps, sills, jambs and lintels for the doorways into the lower part of the turrets from the yard of the said reformatory. And the said Aldridge further agrees to deliver the said cut dimension stone, the subject of this contract, at the several turrets and watch towers, at the times and in the order required by the superintendent and engineer for the time being in the employ of said building commissioners, ready in all respects to be laid into the work.

And it is further mutually understood and agreed that the said party of the first part will faithfully perform the work embraced in this contract, and also that the said building commissioners will pay for the work, when so performed, at the following rates: For dimension stone, cut and delivered as per contract, at the rate of two dollars per superficial foot.

It is further mutually understood and agreed, between the parties hereto, that this agreement is supplementary to and an addition to an original agreement or contract made between the said party of the first part and the building commissioners of the State Reformatory, on the 28th day of December, 1871, in relation to cut stone and other work in the main walls of said reformatory, and it is intended and agreed that all the stipulations and agreements contained in said original contract which can apply to the subject-matter of this contract, and which do not conflict with the express or implied stipulations of this supplementary agreement, are to become also a part and parcel of this contract.

(Signed) GEO. W. ALDRIDGE. [L. s.]

C. C. B. WALKER. [L. s.]

J. D. BALDWIN. [L. s.]

S. C. TABER. [L. s.]

C. D. CHAMPLIN. [L. s.]

STEPHEN T. ARNOT. [L. s.]

SPECIFICATIONS.

The stone for gateways and for sills, jambs and lintels, for loops or windows of the upper section of the watch towers attached to the yard wall of the State Reformatory at Elmira, New York, and also the steps, jambs, sills and lintels of the doorways into the lower part of the said towers or turrets, shall be composed of best quality of Corning stone, of the dimensions shown on architect's drawings, or as directed by him or the engineer in charge. The said stone shall be neatly bush-hammer dressed, in such form as may be directed by said architect or engineer. No stone shall be put in the work, accepted or paid for, until it has been examined and approved by the said engineer. The superficial measure of the steps shall be the measure of that part of the upper bed and face and ends of the stone projecting beyond the face of yard wall, provided the same is cut as

above provided, and generally with all of said stone the superficial measure shall be such portions of said stone as are exposed to view and cut as above described.

[Copy.]

("F.")

CONTRACT WITH GEO. W. ALDRIDGE FOR FLAGGING FOR CELLS.

Article of agreement made and concluded this twenty-seventh day of August, 1872, between George W. Aldridge, of the city of Rochester, county of Monroe, and State of New York, of the first part, and the executive committee of the building commissioners of the State Reformatory at Elmira, New York, of the second part, whereby it is covenanted and agreed as follows: The said George W. Aldridge, party of the first part, hereby covenants and agrees to furnish, cut and set, complete, all of the flagging stones required for said reformatory, according to the plans furnished therefor, and agreeable to and in conformity with the specifications hereto annexed. It is further agreed that the work under this contract shall progress in such order, and at such times, as the commissioners, by their superintendent and engineer, shall direct. It is hereby further mutually agreed that the said party of the first part will perform the work embraced in this contract, and also that the commissioners in charge will pay out of the moneys appropriated therefor, in full compensation for the same, the following sums, at the following rates, for all of the flagging stones for the cells, cut and set in the work, complete, one dollar and fifty (\$1.50) cents per superficial foot, and for the remainder of the flagging for the corridors, kitchens, and all others that may be required, when cut and set in the work complete, eighty-five cents per superficial foot.

It is further mutually agreed that fifteen per cent of the work done, or materials furnished, under this contract, shall be reserved by the commissioners until the entire work which is the subject of this contract shall be fully completed. And it is further agreed that within fifteen days from the expiration of each month in which work shall be done under this contract, the said commissioners will pay therefor such sums as shall not, with former payments, exceed the amount actually done under this contract according to the estimates of the superintendent and engineer, and within sixty days after the

work has been completed the said commissioners shall pay the said party of the first part the sum which, by the final account to be rendered by the superintendent and engineer, shall be found due to him. And it is further mutually agreed that in the event that the parties of the second part shall suspend the work for lack of funds, the party of the first part shall not be entitled to receive prospective damages on that account. And it is further agreed by the parties hereto that in case this contract shall be canceled by mutual consent of both parties, all per centage retained as security for the performance of the work shall be paid in full to the party of the first part.

The work herein mentioned shall be done under the directions of the supervising architect and the engineer and superintendent in charge, and any workmen employed by the contracting party who shall, by the said superintendent and engineer, be deemed incompetent or unfaithful, shall be immediately discharged.

GEO. W. ALDRIDGE, [L. S.]
Contractor.

C. C. B. WALKER, [L. S.]
 STEPHEN T. ARNOT, [L. S.]
 C. D. CHAMPLIN, [L. S.]
 S. C. TABER, [L. S.]
 J. D. BALDWIN, [L. S.]
Building Commissioners.

SPECIFICATIONS

Of the flagging required for the State Industrial Reformatory now in progress of erection at Elmira, N. Y.

All stone shall be of dimension hereinafter specified, and to be of a sound, durable quality, such as shall be accepted by the supervising architect and the superintendent and engineer, and shall be furnished as fast as required. The flagging for the floor, or the bottom or first tier of cells, also those that form the ceilings of the upper tier, shall be not less than four (4) inches thick, and for the intermediate stone which are to form the floors and ceilings, shall be not less than five (5) inches thick, and all visible surfaces which do not have a natural smooth and straight face, shall be dressed smooth and straight, and the edges shall be pointed straight wherever they come against the sills of the cell doors, and made to fit with a close joint. The bal-

ance of the flagging for corridors, kitchen, and all others that may be required, shall be not less than three (3) inches thick, and properly dressed on one side (except where the stone have a natural and even surface). All stone shall be properly squared and the edges dressed, so that they will lay with a close joint and all set complete; all those (except for the four upper tier in cells) shall be laid and bedded in the best water-lime cement mortar at least two inches thick, and all of the joints filled with cement. The stone for the four upper tier of cells shall be bedded in cement mortar at least one inch thick and set perfectly level. The stone for the corridor floors shall be in three courses in the width of the corridors, and all others in accordance with the dimensions given in the bill annexed.

SIZE OF FLAGS FOR THE CELLS.

Mark.	No.	Size.
S	40	8.8x8.8
A	130	5.8x8.8
B	220	5.8x8.8
C	170	7.5x8.8
D	70	10.8x8.8

STATE OF NEW YORK.

No. 75.

IN SENATE,

April 8, 1873.

LIST OF GENERAL ORDERS.

S. O.

- 474. An act for the relief of the Woman's Hospital of the State of New York.
- 475. An act for the relief of the Home for Fallen and Friendless Girls in the city of New York.
- 476. (Assembly, 289.) An act to amend the charter of the West Side German Dispensary in the city of New York.
- 477. An act to amend an act entitled "An act to revise the charter of the city of Buffalo," passed April 28, 1870.
- 478. (Assembly, 474.) An act to extend the time and duties of the commissioners for the laying out of streets, avenues, roads and parks in Long Island City.
- 479. (Assembly, 200.) An act to amend an act entitled "An act to regulate elections in the city of Brooklyn," passed May 7, 1872.
- 480. An act to incorporate the Cohoes Hotel Company in the city of Cohoes.
- 481. An act to amend an act entitled "An act to establish a department of police in the city of Buffalo, and to provide for the government thereof," passed April 26, 1871.
- 482. An act to open a square, to be known as Putnam square, in the city of Brooklyn.
- 483. (Assembly, 85.) An act to amend an act entitled "An act to incorporate the Commercial Warehouse Company of New York," passed April 13, 1867.

G. O.

484. (Assembly, 311.) An act to authorize the Troy and West Troy Bridge Company to increase its capital stock and to issue bonds of the company.
485. (Assembly, 359.) An act to amend the act, chapter 787 of the Laws of 1872, authorizing the city of Binghamton to use a portion of the Chenango canal for a public street.
486. An act to amend an act entitled "An act to authorize the town of Pelham, in the county of Westchester, to purchase, pay for, acquire title to and maintain the bridge owned by the City Island Bridge Company," passed March 20th, 1873.
487. (Assembly, 393.) An act to authorize the board of supervisors of the county of Schenectady to sell its poor-house, farm and buildings, and to remove such poor-house.
488. (Assembly, 271.) An act to provide for the election of a superintendent of the poor of Fulton county.
489. (Assembly, 444.) An act to amend an act entitled "An act to amend and consolidate the several acts relating to the preservation of moose, wild deer, birds and fish," passed April 26, 1871.
490. (Assembly, 448.) An act to authorize the town of Newport, in Herkimer county, to raise money to build and complete a town-house in the said town of Newport.
491. (Assembly, 216.) An act to amend an act entitled "An act to authorize the formation of corporations for manufacturing, mining, mechanical and chemical purposes," passed February 17, 1848, and the acts amendatory of said act, and to extend the operation thereof.
492. (Assembly, 342.) An act relating to the First Society of the Free Methodist Church, in the town of Parma.
493. An act to amend chapter 767 of the Laws of 1872, relating to salaries of county judge and surrogate.
494. An act in relation to Grace Church, New York.
495. (Assembly, 394.) An act to release the interest of the people of the State of New York, in certain escheated lands, to David Curry.
496. (Assembly, 410.) An act to authorize the county clerk of Livingston county to sign the certificates of record of deeds and mortgages, and other records, or of filing of papers recorded or

G. O.

filed in Livingston county clerk's office, which were not signed by the former clerks of said county of Livingston.

497. (Assembly, 26.) An act to amend an act entitled "An act providing for the better collection of county taxes in the city of Buffalo, and for the sale, by the treasurer of Erie county, of lands in said city for unpaid taxes," passed April 7, 1859.
498. (Assembly, 462.) An act to incorporate the official acts of Jonathan O. Fowler, a justice of the peace.
499. (Assembly, 294.) An act to amend chapter 662 of the Laws of 1870, passed May 5, 1870, entitled "An act to repeal an act to provide for the publication of legal notices in the county of Hamilton," passed April 19, 1866; also an act amending the same, passed March 26, 1867.
500. An act to amend an act entitled "An act making provision for the support of certain dispensaries in the city of Brooklyn," passed April 21, 1870.
501. (Assembly, 195.) An act for the improvement of the Ausable river and its branches.
502. An act to incorporate the Albany Loan and Trust Company.
503. An act to incorporate the New York Mortgage and Trust Company.
504. (Assembly, 259.) An act to incorporate the Gloversville Savings Bank.
505. (Assembly, 256.) An act to amend an act entitled "An act to prohibit the interment of the dead in the old burial ground, in the village of Heuvelton, St. Lawrence county, and to authorize the removal of the dead from the old to the new cemetery," passed April 21, 1870.
506. (Assembly, 359.) An act to incorporate the Forestville Market-day and Agricultural Association.
507. An act to incorporate the Venezuela Central Railroad Company.
508. (Assembly, 423.) An act to authorize the construction of a railroad in Christopher and certain other streets and avenues in the city of New York.

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509. (Assembly, 589.) Authorizing the bonds of the town of Portville, Cattaraugus county, to be issued in aid of the Rochester, Nunda and Pennsylvania Extension Railroad Company, and dispensing with certain conditions heretofore imposed upon the commissioners appointed to issue such bonds in aid of said company.
510. An act to amend an act entitled "An act to authorize the formation of railroad corporations, and to regulate the same," passed April 2, 1850, so as to permit the classification of directors of railroad corporations.
511. An act to compel railroad commissioners to give bonds.
512. An act to legalize the action of the board of supervisors of the city and county of New York.
513. An act to amend section 14 of chapter 744 of the Laws of 1867, entitled "An act to define the objects of the New York State Institution for the Blind, and to provide for its management."
514. An act to determine a plan of grades for certain streets and avenues in the town of New Utrecht.
515. An act to provide for the collection of the unpaid assessments which have been laid under an act entitled "An act to lay out and improve a public highway or avenue from Prospect Park, in the city of Brooklyn, toward Coney Island, in the county of Kings," passed May 11, 1869.
516. (Assembly, 164.) An act to repeal an act entitled "An act to incorporate the Grand Commandery of the State of New York," passed April 28, 1871.
517. An act to confirm the resolution of the annual town meeting of the town of Shawangunk, in the county of Ulster, State of New York, fixing the place of holding the annual town meetings of said town.
518. An act to deprive and restrict the powers of the board of water commissioners of the city of Rochester.
519. (Assembly, 248.) An act to amend an act entitled "An act to authorize the making and opening of a road or avenue from the intersection of the highway running east of Rockland lake with the highway running from the lake to Rockland Lake landing, in the county of Rockland, to intersect the high-

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way running from Upper Piermont to Orangeburgh," passed April 21, 1871, as amended and extended by an act entitled as above, and to extend Highland avenue south to the State line, passed April 24, 1872.

520. An act to authorize the Syracuse and Chenango Valley Railroad Company to create a second mortgage upon its road, property and franchises.
521. An act to provide for the final closing of incorporated banks.
522. An act to amend an act entitled "An act to authorize the formation of corporations for the erection of buildings," passed April 5, 1853.
523. (Assembly, —.) An act to confirm the official acts of Joel T. Potter, a justice of the peace in and for the town of Schroon, Essex county, and to enable him to take and file his oath of office.
524. (Assembly, 466.) An act to legalize the acts of Shipman L. Griffith, a justice of the peace of the county of Wyoming.
525. (Assembly, 279.) An act to change the name of the Albany Iron Manufacturing Company and to amend its charter in respect to the liability of its stockholders.
526. (Assembly, 396.) An act in relation to publication of notices and citations.
527. (Assembly, 525.) For the relief of sick prisoners confined upon civil process.
528. An act to amend an act to incorporate the city of Ogdensburgh, passed April 27, 1868, and the acts amending the same.
529. An act vesting in the United States of America jurisdiction over certain pieces of land on the Brooklyn and Jamaica turnpike, near the city of Brooklyn.
530. An act giving the consent of the State of New York to the purchase of certain land now occupied by the United States Military Academy, or appertaining to the lands so occupied, and ceding the jurisdiction of this State over said lands to the United States.
531. An act to provide for the assessment and collection of taxes for school purposes in the town of Morrisania, in the county of Westchester.

STATE OF NEW YORK.

No. 76.

IN SENATE,

April 7, 1873.

RESOLUTIONS

OF THE CHAMBER OF COMMERCE IN REGARD TO THE CANALS OF THE STATE OF NEW YORK.

At the meeting of the Chamber of Commerce held April 3, 1873, Hon. William E. Dodge, president, in the chair, the following preamble and resolutions, submitted by Mr. John Taylor Johnston, chairman of the committee on canals, railroads, etc., of the Chamber, were unanimously adopted:

Whereas, On the 8th day of February, 1871, this Chamber passed the following resolutions:

Resolved, That the State canals, being the only available avenues for the transportation of the products of the west which the railways are unable to carry to tide-water, and the most effectual if not the only check upon the combinations to exact unreasonable rates of freight on the other avenues to market, should be administered solely in the interests of commerce, and not for the purpose of making any profit thereon beyond the amounts required to keep the canals in an efficient state of repair, under honest and capable management, to pay the interest on the debt incurred for their construction, and provide a moderate annual contribution to the sinking fund (not exceeding one per cent of the principal) for the redemption of the canal debt, but imposing no other tax whatever upon what has been justly styled 'the right of way for the million,' and should be made without undue delay free commercial channels for the common use of all the people of the United States.

Resolved, That the varying condition and exigencies of the commerce of the country require that the power to change the rates of

toll should reside in the executive administration of the canals, without being forced to resort to special legislative sanction, and that the Chamber of Commerce will favor the adoption of such an amendment as will secure this power and effect the object specified in the first resolution."

And whereas, It is deemed proper that some expression of the views of the Chamber should again be made on the important subject, therefore

Resolved, That the Chamber of Commerce of the State of New York hereby reaffirm its former resolutions as above quoted.

Resolved, That the Chamber hereby approve and indorse the portions of the Governor's annual message relating to the canals and to the policy of funding the canal debts.

Resolved, That copies of the above preamble and resolutions, and of the amendment to the Constitution proposed to carry out the same, be transmitted to the Governor and to the Legislature.

A true copy.

W. E. DODGE,
President.

GEORGE WILSON,
Secretary.

PROPOSED AMENDMENT OF THE CONSTITUTION OF THE STATE OF
NEW YORK.

Article —. In order that the tolls on the canals of this State may be reduced, so as to meet the requirements of commerce and prevent the diversion thereof from this State, the commissioners of the canal fund shall borrow on the credit of the State such sums as may be necessary for paying the canal and general fund debts now charged on the canals, as the same shall fall due, by the issue and sale of bonds or certificates of stock, having forty years to run from their date, bearing interest at the rate of five per cent per annum, payable semi-annually; for the payment of the principal whereof at maturity a sinking fund of one per cent per annum shall be established, and the tolls of the canals shall be fixed from time to time by the Canal Board at rates sufficing as near as may be to provide only for said sinking fund, the interest on the debt so created and the expense of keeping the canals in repair.

STATE OF NEW YORK.

No. 77.

IN SENATE,

April 9, 1873.

REPORT

OF THE BOARD OF OFFICERS APPOINTED BY THE PRESIDENT OF THE UNITED STATES TO EXAMINE THE EXTERIOR, PIER AND BULK-HEAD LINES OF THE HARBOR OF NEW YORK, ON THE BROOKLYN SIDE, ALSO LETTER FROM LIEUT.-COLONEL NEWTON, WITH CHARTS, ETC.

STATE OF NEW YORK:

EXECUTIVE CHAMBER,
ALBANY, *April 8th*, 1873. }

To the Legislature :

I transmit, herewith, a report to the present date, by a board of officers appointed by the President of the United States, in compliance with a resolution of the Legislature at its last session, to examine into and revise the exterior pier and bulk-head lines of the harbor of New York, on the Brooklyn side.

I also transmit a letter from Lieut.-Colonel Newton, one of the board, with additional information, and three charts in illustration of their report.

JOHN A. DIX.

REPORT.

NEW YORK, *April 5th*, 1873.His Excellency JOHN A. DIX, *Governor of the State of New York* :

SIR.—In accordance with the duties imposed upon the board—appointed by the Governor in compliance with a resolution of the Legislature of the State of New York, at its last session—by the President of the United States, to examine into and report upon a proper method of revising the exterior pier and bulk-head lines of the harbor of New York, on the Brooklyn side, the board has the honor to present to you a copy of the order under which it has acted, and a report, to the present date, of its progress in determining the proper pier and bulk-head lines on the Brooklyn side of New York harbor.

Special Orders, No. 101.

WAR DEPARTMENT, ADJUTANT-GENERAL'S OFFICE, }
WASHINGTON, D. C., *April 30th*, 1872. }

(Extract.)

* * * * *

By direction of the President, Brigadier-General A. A. Humphreys, Chief of Engineers, Hon. Benjamin Pierce, Superintendent of the Coast Survey, and Lieutenant-Colonel John Newton, corps of engineers, in charge of the improvement of New York harbor, are hereby constituted a board to examine into and report upon a proper method of revising the exterior pier and bulk-head lines of the harbor of New York, on the Brooklyn side.

The board will convene at the earliest practicable day, and will report to the Governor of the State of New York before entering upon their duties.

* * * * *

By order of the Secretary of War.

(Signed)

E. D. TOWNSEND,
*Adjutant-General.*Official: Wm. D. WHIPPLE, *Assistant Adjutant-General.*

The board met under the call of Brigadier-General A. A. Humphreys, chief of engineers, on May 17th, 1872.

The first duty, to report to the Governor of the State, was duly performed.

Communications were addressed to the Honorable Secretary of State of New York, and to Gen. Geo. B. McClellan, chief engineer of the department of docks, requesting the use of certain maps for the service of the board.

A map of the pier and bulk-head lines of the city of New York, as laid down by the harbor commissioners of 1856-57, and of proposed projection of pier and bulk-head lines recommended by the department of docks on the New York side of the harbor, were very promptly and courteously sent from the office of that department, for the temporary use of the board.

It was directed by the board that observations should be made upon the set and velocity of the currents during the flood and ebb, in the channels around Governor's Island and in the East river. A map was directed to be prepared, exhibiting the actual and proposed pier and bulk-head lines on the New York and Brooklyn sides, in the East river and below Red Hook.

Mr. J. S. T. Stranahan, President of the Atlantic Dock Company, appeared before the board and read a paper, of which the following is a copy :

OFFICE OF THE ATLANTIC DOCK COMPANY, }
BROOKLYN, N. Y., *May 22, 1872.* }

To the Board of Engineers on the Revision of the Pier and Bulk-head lines in front of the city of Brooklyn :

GENTLEMEN.—Piers in front of the property owned by the Atlantic Dock Company; from Hamilton ferry to Red Hook point, can be made useful to the commerce of the port and serviceable to the property.

We trust that it will be found safe to allow this company to extend piers, from the present bulk-head over the shoal toward the channel, into sixteen feet of water, from Partition street to the entrance to the basin, and from that point to the ferry; we suppose the line will depend upon that adopted in front of property owned by other parties between Hamilton and Fulton ferries.

The increasing and urgent demand for accommodation for steam vessels applies with great force to this location.

Very respectfully,
(Signed) J. S. T. STRANAHAN,
President.

It was directed, likewise, that the owners of water property, likely to be interested in the action of the board, be notified that the board was prepared to receive their communications.

The board adjourned on the 23d May, subject to the call of its president.

The board again convened on September 19, 1872. Charts exhibiting the set and velocity of the currents in East river, from Gowanus Island to and including Corlears Hook, and prepared under its direction, were submitted to the board; as likewise a map prepared for the board, by the department of docks, showing the proposed and actual pier and bulk-head lines of the cities of Newport and Brooklyn, and the East river from Gowanus bay to Hell Gate.

The board of commissioners of pilots, represented by Messrs. George W. Hunt and William C. Thompson, were present by invitation, and stated the views of their board relative to the effect which the narrowing of the river would have upon navigation and the interests of commerce.

Pilots J. C. Wolf, Frederick Nelson, Robert Hamitt, Charles C. Freeman and William H. Johnson were also before the board and gave their views upon the effect the said narrowing of the river would have upon the the docking of vessels.

The board directed a hydrographic survey to be made of the waters of the bay bordering upon Brooklyn and extending from Red Hook to Owl's Head, including Gowanus bay, and also that current observations be extended up the East river above Corlears Hook, as far as the available funds in the hands of the board would permit.

The board adjourned September 21, 1872, to await the call of the president.

The board met April 3, 1873. A map of the hydrographic survey of the bay from Red Hook to Owl's Head, including Gowanus bay, was exhibited.

Owners of water property on the Brooklyn side likely to be affected by the action of the board were invited by public notice to be present.

The board, after mature consideration of the observations made and the information embodied in the maps and charts accompanying this report, after a careful study of the necessities and convenience of commerce, have the honor to recommend for a portion of the pier line upon the Brooklyn side of New York harbor:

1st. The channel-way of that portion of the river between the Wallabout and Fulton ferry, as now defined by the pier and bulk-

head lines now established, cannot be narrowed, or its area diminished, without injuriously affecting its navigation. The pier lines of this part of the water front of Brooklyn should, therefore, remain as now established.

2d. For the portion of the East river extending from Fulton ferry to the Atlantic docks a pier line is recommended as follows: From a point in the prolongation toward the channel of the south-west face of the bridge abutment, twenty feet distant from the north-west corner of the said abutment, in a gentle curve to the extremity of Martin's upper pier; thence in a straight line to the extremity of Martin's middle pier; thence in a straight line to the extremity of Martin's lower pier; thence in a straight line to a point in the prolongation of the upper line of Ford's pier near the foot of Grace Court prolonged, and fifty feet beyond the outer end of said pier; thence in a straight line to a point in the prolongation of the upper line of Robinson's pier, between the foot of Warren and Congress streets, two hundred feet beyond the outer end of said pier; thence in a straight line to a point on the prolongation of the upper line of the lower pier of Hamilton ferry slip, and fifty feet beyond the outer end of said pier.

Although the board is in possession of the requisite data for determining the pier line in front of Atlantic dock, at Red Hook, the lines of Gowanus Bay, and thence to Owl's Head, yet, owing to the absence of one of its members, it is deemed advisable to postpone the recommendation of that portion of the line to a future report.

But, upon the application of Messrs. Beard, Robinson and others, proprietors of the Erie basin, to modify in certain respects some of the interior lines and spaces thereof, it is recommended that their application be granted; upon map "A," sent herewith, are shown in red the lines of the basin as fixed by law; the lines in green represent the modifications applied for.

The amount of funds (\$5,000) granted by the State has proved inadequate to complete a proper system of observations for the space from the Wallabout to and including Hell Gate; and the board consequently will not be able to prepare a recommendation for the pier and bulk-head lines of this section, unless the Legislature should see fit to make a further appropriation for such object.

The sum of \$7,000 is deemed sufficient for this.

Accompanying this report will be found the following maps:

Map marked "A," showing the shore line of the city of Brooklyn,

including Gowanus bay, extending as far as Owl's Head. Also two current charts marked "B" and "C," representing the currents on the ebb and flood, for the portion of the East river extending from Governor's Island to the Wallabout, as executed under the orders of the board.

Paper marked "D" being an abstract of communications, addressed to the board by the owners of water fronts subject to revision.

Respectfully submitted.

A. A. HUMPHREYS,
Brig.-Gen., Chief of Engineers U. S. A.
 JOHN NEWTON,
Lt.-Col. of Engineers, Bvt. Major-Gen'l.

D.

Abstract from letters addressed by owners of water fronts to the special board for the revision of pier and bulk-head lines, on the Brooklyn side of New York harbor.

1. Charles Pratt, foot of North Twelfth and North Thirteenth streets, Williamsburgh, has built in the East river a solid bulk-head on the bulk-head line established by act of Legislature in 1865, and run out a pier of (150 feet) one hundred and fifty feet in length to the pier line authorized by the same law. Requests permission to extend his pier (250 feet) two hundred and fifty feet, measured from its present end, and proposes the adoption of the line indicated on the "Rosa" map, for the southerly river front of the Bushwick inlet, as the future bulk-head line for that part of the creek.

2. C. and R. Poillon, ship-builders, foot of Gold and Bridge streets, Brooklyn, request the extension of pier line (100 feet) one hundred feet beyond the present line.

3. Nesmith & Sons, Empire stores, foot of Main and Deck streets, Brooklyn, wish to extend their piers in the river, as follows :

- | | |
|----------------------------------|---|
| a. The lower pier about 125 feet | } Measured from the present end
of the respective piers. |
| b. The middle one about 65 feet | |
| c. The upper one about 5 feet | |

4. Jewel Brothers, Brooklyn City Flour Mill, foot of Fulton and Doughty streets, Brooklyn, desire the filling in or carrying out of the present bulk-head, of from (25 feet to 30 feet) twenty-five feet to thirty feet, at the foot of Fulton street, Brooklyn.

5. Mr. Martin, Martin's stores, Brooklyn, has finished the extension of his upper pier.

6. C. L. & J. L. Colby, Harbeck stores, Brooklyn, have submitted a plan of their docks, showing the pier which they are now building by authority of the Legislature of this State, and desire to ask that, in the revision of the pier line, they may be allowed (50 feet) fifty feet additional, or (400 feet) four hundred feet from the bulk-head line of 1857.

7. Henry E. Pierrepont, foot of Pierrepont street, Brooklyn, desires to extend the present piers at least (150 feet) one hundred and fifty feet, to obtain piers of (400 feet) four hundred feet length and more.

8. John Prentice, Prentice stores, Brooklyn, foot of Montague and Joralemon streets, requests permission to extend his long pier (150 feet) one hundred and fifty feet from its present end, and to bring the two other piers to the same pier line.

9. David Dows, foot of Atlantic and Amity streets, Brooklyn, requests the right to extend his two piers (150 feet) one hundred and fifty feet beyond the pier line as established in 1857.

10. William Beard, foot of Amity street, Brooklyn, requests that the new pier line be so run as to allow him to extend his pier at the foot of Amity street, Brooklyn (450 feet), four hundred and fifty feet from the present bulk-head line.

11. Woodruff and Robinson, foot of Congress and Warren streets, Brooklyn, request that the new pier line, which is to be established by the special board, be so run as to allow them to extend their two piers in front of their premises (450 feet) four hundred and fifty feet from the present bulk-head line.

12. Commercial Warehouse Company, Brooklyn, are desirous of getting information as to the proposed alterations the board intend making in the piers at the Atlantic dock.

13. Atlantic Dock Company, Brooklyn, have submitted a map showing, in pencil lines, their proposed pier line, from foot of Hamilton avenue to the entrance of Erie basin.

14. Divine Burtis, Henry D. Brookman and James Wilson, north of Conover street to the lands of the Atlantic Dock Company, Brooklyn, request an extension of the present bulk-head line, or, in any event, a pier line, at such distance outside of the present bulk-head line so that piers can be built into water a depth sufficient to accommodate ocean steamers or other large vessels; length of said piers not to exceed (600 feet) six hundred feet from their land.

15. William Cutting, 70 Beaver street, executor of Francis B. Cutting's property, foot of Ferris and Conover streets, Brooklyn, requests the carrying out of the exterior pier and bulk-head lines, in front of

said property, sufficiently to give space for building a pier of from (400 feet) four hundred feet to (500 feet) five hundred feet in length.

16. Beard and Robinson, owners of the whole of the sea wall inclosing Erie basin, and said Erie basin, Brooklyn, request permission to build a breakwater at the easterly entrance to said basin outside the said sea wall, and forming part thereof, substantially as represented in the diagram annexed.

17. W. Beard, Jeremiah P. Robinson, Isaac Rich, Franklin Woodruff, George C. Robinson and Francis D. Moulton, Brooklyn, would suggest alterations in the size and division of Erie basin, as a substitution of the proposed plan previously submitted.

UNITED STATES ENGINEER OFFICE,
ROOM 31, ARMY BUILDING, COR. HOUSTON AND GREENE STS., }
NEW YORK, *April 7, 1873.*

His Excellency JOHN A. DIX, *Governor of the State of New York:*

SIR.—In the report of the board for the revision of the harbor lines in the harbor of New York, on the Brooklyn side, dated April 5, 1873, and transmitted on that date to your Excellency, and at that portion of the report where the upper point of the new pier line, as recommended by the board, is defined in the following words: “From a point in the prolongation towards the channel of the south-west face of the bridge abutment, twenty feet distant from the north-west corner of the said abutment, in a gentle curve to the extremity of Martin’s upper pier,” * * * it was not the intention of the board to interfere with the length of the upper spring-pile fender pier at Fulton ferry, as defined by the pier line of 1857, established by law, nor to indicate an opinion that such length is too great, although the “gentle curve to the extremity of Martin’s upper pier” would, in effect, cut off a part of said spring-pile fender pier.

The initial point would have been defined upon the spring-pile fender pier, but for the reason that such structure was temporary in its nature, and liable to alteration and removal from time to time, whereas the bridge abutment would be a permanent mark.

It is not thought that the words given above, defining the initial point and the first portion of the new pier line, would have the legal effect of disturbing the fender pier of the ferry company, but to prevent any doubt of the meaning of the board, it was thought best to indicate clearly its intentions.

I have the honor to be, your Excellency’s obedient servant,

(For the Board)

JOHN NEWTON,

Lieut.-Colonel Engineers, Bvt. Maj.-Gen.

STATE OF NEW YORK.

No. 78.

IN SENATE,

April 11, 1873.

REPLY

OF THE COMPTROLLER OF THE CITY OF NEW YORK
TO A RESOLUTION OF THE SENATE, SHOWING THE
AMOUNTS CLAIMED AND PAID TO THE VARIOUS
NEWSPAPERS OF THE CITY DURING THE LAST
FIVE YEARS, ETC.

IN SENATE,
ALBANY, *March* 10, 1873. }

Resolved, That the comptroller of the city of New York be requested to communicate to the Senate a statement showing the amounts claimed and amounts paid to the various newspapers of the city during the last five years, and also of the claims which have been presented and amounts paid to each in settlement, since his accession to office, basis of settlement, when settled, and other matter to aid any legislation.

By order of the Senate.

CHARLES R. DAYTON,
Clerk.

[Senate No. 78.]

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REPORT.

DEPARTMENT OF FINANCE, COMPTROLLER'S }
OFFICE, NEW YORK, *April*, 1873. }

To the Honorable the Senate:

I have received from the Senate the following resolution:

“IN SENATE,
ALBANY *March* 10, 1873. }

“*Resolved*, That the comptroller of the city of New York be requested to communicate to the Senate a statement showing the amounts claimed and amounts paid to the various newspapers of the city during the last five years, and also of the claims which have been presented and amounts paid to each in settlement, since his accession to office, basis of settlement, when settled, and other matter to aid any legislation.”

In the performance of the duty imposed upon me by this resolution schedules are herewith submitted, showing:

“A.” The amounts actually paid for advertising for the city and county in each of the years 1867, 1868, 1869, 1870, 1871, and the total paid for these five years, amounting to the sum of \$3,569,676.45.

“B.” The cost of advertising for the city and county
In 1871 \$1,093,369 87
In 1872 145,550 10

Being a reduction in one year of \$947,819,77

There is but little doubt that if the Legislature does not pass any laws compelling more city advertising that the cost of it will, in 1873, be still further reduced.

“C.” The amount of claims presented to the board of audit under chapter 375, Laws of 1872, being \$2,112,236.57, and the amount allowed thereon, to wit, the sum of \$500,917.17. The amount of \$819,684.29, of claims which have not yet been finally settled, are, it is believed, generally very excessive. Some are without authority and some wholly spurious. A statement of these claims will be found in schedule “H.”

“D.” The total cost paid for advertising for five years, to wit, \$3,569,676.45, which, with a further large amount of claims presented

since 1871 but not allowed, would make a total of claims for five years of \$5,180,995.85.

“E.” A tabulated form of the arrangement of the claims, and the examination and report thereon by the examiners.

“F.” Form of affidavit required of publishers.

“G.” The form of certificates of examiners as to previous payment of bills presented.

In submitting these results in the condensed form of tables, the undersigned deems it necessary to accompany them with a few explanatory comments.

Among the most numerous and extensive of the claims presented at the finance department were those of the proprietors of newspapers for city and county advertising, and they were of a very complicated, confused and voluminous character.

It is difficult to describe the artifices and agencies by which many of these claims have been put upon the treasury. The necessity of dealing with demoralized officials begot a class of equally demoralized agents; each acted upon and debauched the other.

The advertising claims began to swell into excessive proportions about the year 1865, in which year they were paid at \$81,421.74; thenceforward they steadily increased in volume up to 1871, in which year they were \$1,093,369.67.

Assuming the duties of comptroller in the latter part of that year, the undersigned found the treasury practically empty, but the claims for advertising were immediately urged with pertinacity, though there were no means to pay even those that were just. The reputable standard papers were very far from being the chief beneficiaries of this class of patronage; it was bounteously bestowed upon persons who procured the printing of sheets which were neither newspapers nor in any sense useful as mediums of advertising. They were without circulation, and so obscure that even their names were unknown. They were wholly dependent upon the avails of the public advertising, and when that was withdrawn they ceased to exist.

The Legislature of 1872 passed a very liberal act for the settlement of these claims (chapter 375).

It became immediately apparent that the extravagant expectations of some of these claimants must be dissipated, and as the courts were repeatedly appealed to by them to establish their claims they were as often resisted.

A great variation in prices, rates, size of type, measurement, authority to publish and extent of circulation were involved.

It was necessary, in their examination, to understand the mysteries of the printing office, and it was evident to do justice this examination must be reduced to a system, and such a system was devised, comprehending the following features :

1st. The services of men of integrity and character, experts in printing and newspaper advertising, were engaged to analyze the claims and ascertain the quantity of advertising done. This was to be accomplished by a careful examination of the volumes or files of the newspaper, which the publisher was required to produce. Each individual paper was examined to see if the advertisement charged for had been inserted in each paper as claimed, that is, if an advertisement was charged for as inserted fourteen times, each of the fourteen papers in which it was alleged to have been inserted was examined, to see if the number of times and lines charged for, was correct. Next that the size of the type was correct, inasmuch as many of the papers used an unusually large type in order to lengthen the advertisement by increasing the number of lines.

2d. The matter of rate or price at which the advertisement was to be paid for was referred to examiners, who ascertained and reported on the actual price at which the advertisement should be charged in any given paper. This, with papers other than the standard papers, was often a very difficult task.

3d. One or more clerks were detailed to search the files of the department to ascertain whether any advertisement for which pay was now claimed had been before paid. (See schedule G.)

4th. It was also necessary to ascertain whether the advertisements charged for were authorized by law. Some papers were accustomed to copy advertisements from the authorized journals, without any authority whatever, and present their bills for payment as though they had some right or authority to do so; and this was often long after the period had expired when they could be of any utility.

5th. All these matters were put in a form of a tabulated sheet, one of which, as a specimen, is herewith annexed. (See schedule E.)

6th. The publisher was required to make affidavit to his claim. (See schedule F.)

All this having been gone through with, the results were laid before the board of audit in those cases in which its action was required, and the claim was acted on and passed, rejected or modified.

There was taken from the treasury for the work claimed to be due by a journal called the " Transcript," which was the peculiar property of the next friends of certain well-known ex-officials, the sum of

\$109,461.65 in the year 1871. In five years there was paid to this journal \$783,498.09, and a claim for \$186,160.20 is still presented, making a total of \$969,658.29 for this paper, and it is understood that more is to come in. The work formerly done by this "Transcript" paper, is now better done for the sum of \$9,500 per annum.

In the examination of these claims there was found a great diversity in the prices charged, and in the method of computation adopted by the various journals. Papers of standard character, with large circulation, were exceeded in the rates for advertising demanded by unknown sheets of but trifling circulation. Enormous demands were made for advertisements which were set up in a large sized type, and charged for as having been printed in type two or three sizes smaller, the result being that an advertisement would occupy twice or thrice the space to which it was legitimately entitled; thus more than doubling the amount of the bill. The utmost license was also taken to space out and increase the length of the advertisement without the slightest advantage to the public. Another practice that discriminated with great injustice against leading journals of established capital and character, was the printing by a job printer of voluminous public documents, like the mayor's message of 1871, with reports of all the departments in full, and the official canvass, covering sometimes from *ten to twenty-six large newspaper pages*, or from *sixty to one hundred and fifty newspaper columns*. The enterprising printer sold them at a price per thousand to various newspapers, which issued them with their sheets, charging their full rates for advertising, as if the same had been printed in their regular issue. Demands for this service were made of amounts from \$8,000 to \$12,000, for printed sheets which were bought of the job printer for less than \$500 dollars.

These advertisements were often simply jobs designed to afford large business to parties who actually rendered no service, and who failed to produce the evidence of having published them, or even the evidence, by the production of the files, that their papers were published at all for the periods for which they claimed payment. It was ascertained that the proceedings of the common council were sometimes charged at rates 300 per cent greater than those paid by ordinary business advertisers.

Several claims presented included amounts which had been paid for in previous years, and it was no small task to go through the mass of rubbish of old newspaper slips to ascertain this fact.

In one instance a claim was presented for a large sum for adver-

tising which had been previously paid, and a further examination developed the fact that more than one-fourth of the advertising thus once paid for, and a second time charged for, *had never been done at all.*

A claim of the same party was presented to the board of audit for \$46,331.42. As the examination showed all the services rendered would be well compensated by the payment of \$13,864, that amount was therefore paid, involving a reduction of \$32,467.42.

One journal published the voluminous message of an ex-mayor, with the accompanying documents, and while its readers supposed they were being furnished with these public papers as part of the "news" of the day, they were actually reading it at the expense of one dollar a line, while the rates for ordinary advertising in the same paper were but forty cents a line, this difference between one dollar and forty cents per line, amounting to \$11,000, was disallowed.

The claims of newspapers seem heretofore to have been paid, when paid, at pretty much whatever they chose to ask, without much examination or question.

The great bulk of these claims is for a class of advertising matter of no interest or utility to one in one hundred of the community, and much of it of no use to anybody. There is a class of public advertising, however, that should have wide circulation in the best papers, but the great portion of it, by which the obscure journals have drawn these sums from the treasury, could be done in a way to accommodate those interested at a cost of five per cent on what has been paid for it.

There is a wide difference in the grounds for making these reductions. It would be unjust to conclude, in all cases, that because a reduction has been made in settling a claim, that the claim as presented involved fraudulent charges or wrong intent on the part of the claimant, while in some cases the intent to take improper advantage of the treasury is but too clear.

In many cases insufficient authority, misunderstandings and incidental irregularities gave rise to reasonable differences of opinion, and deductions might be, and in some instances were, the result of conclusions from which the claimants might honestly differ. The standard journals, on a fair consideration of the numerous points and questions involved, generally acquiesced in the reductions made.

With great respect,

AND. H. GREEN,
Comptroller.

SCHEDULE A.

Payments prior to accession to office of present for Advertising by the City and County of New York, 68, 1869, 1870 and 1871.

NAME OF NEWSPAPER.	1867.	1868.	1869.	1870.	1871.	Total five years.	Amount by Board of Audit on claims chiefly for years 1867, 1868, 1869, 1870, 1871, sent Comptroller's book office.	Total five years, including amount by Board of Audit.	Remarks.
<i>Daily Papers.</i>									
Transcript	\$49,541 50	\$305,051 91	\$303,135 05	\$307,537 99	\$100,461 55	\$763,498 09	...	\$763,498 09	Publication discontinued.
Daily News	50,899 97	98,068 80	60,180 78	52,264 31	58,299 31	431,639 07	...	431,639 07	
Daily Star .....	...	229 90	51,156 87	95,323 53	70,846 11	318,477 41	...	318,477 41	
Democrat (Pomeroy's) .....	...	10,447 55	15,717 15	37,803 57	37,409 37	103,977 54	...	103,977 54	
Express	4,540 70	7,400 30	63,535 96	4,906 60	43,453 04	123,919 50	...	123,919 50	
World	18,277 45	27,945 54	12,207 65	39,174 66	30,566 67	130,394 97	...	130,394 97	
Commercial Advertiser	6,237 29	24,903 62	28,392 47	28,704 00	21,761 36	109,900 45	...	109,900 45	
Herald	1,096 00	20,442 17	1,343 60	18,617 40	25,904 73	67,930 10	...	67,930 10	
New York Sun	6,574 05	1,555 73	15,023 50	13,617 40	24,447 80	63,217 43	...	63,217 43	
New Yorker Democrat	1,106 48	12,619 73	7,994 22	15,879 76	2,380 00	43,910 19	...	43,910 19	
New Yorker Journal	1,639 45	1,077 76	4,737 08	27,617 64	8,703 80	43,890 35	...	43,890 35	
Times	1,533 80	20,544 83	20,535 09	4,235 00	7,47 00	35,535 98	...	35,535 98	
Evening Telegram .....	...	2,592 20	30,133 75	26,490 38	716 00	49,323 45	...	49,323 45	
Tribune .....	...	14,343 48	12,312 36	1,347 50	6,914 10	28,544 04	...	28,544 04	
Evening Mail .....	...	31 00	8,280 60	12,106 00	4,006 00	19,607 40	...	19,607 40	
Globe and Evening Press .....	...	...	...	12,341 30	...	12,740 30	...	12,740 30	
Evening Post .....	...	4,265 34	5,802 26	2,416 10	7,964 11	21,680 71	...	21,680 71	
New York Staats Zeitung	73 60	2,544 51	2,310 53	2,315 45	641 40	15,885 01	...	15,885 01	
Abend Zeitung	53 50	1,110 51	2,073 20	2,004 00	2,413 00	9,303 31	...	9,303 31	
Journal of Commerce	31 30	5,200 40	2,529 35	1,581 90	90 70	7,793 31	...	7,793 31	
Messenger Franco-Americain .....	...	...	2,523 70	539 35	...	2,940 35	...	2,940 35	
Scandinavian Post .....	...	103 50	677 40	410 00	...	2,083 40	...	2,083 40	
Evening Commonwealth .....	...	...	370 00	2,203 98	...	2,953 98	...	2,953 98	
Courier des Etats Unis	14 40	...	414 00	1,337 00	...	2,053 40	...	2,053 40	
New York Standard .....	...	...	...	1,914 45	1,113 00	3,038 35	...	3,038 35	
Daily Bulletin .....	...	...	367 08	3,545 56	...	1,591 34	...	1,591 34	

Evening Press Gazette	..... 58 25	..... .....	800 25	1, 317 50	..... .....	2, 077 75 58 25	..... .....	..... .....	2, 077 75 308 25	Publication discontinued. Publication discontinued.
<i>Weekly Papers.</i>										
Sunday Mercury	642 00	3, 775 81	2, 245 15	32, 719 13	59, 731 00	90, 113 69	18, 864 00	112, 977 69	2, 077 75	Publication discontinued.
New York Atlas	3, 091 70	4, 240 68	18, 155 07	12, 959 78	40, 723 75	79, 170 98	9, 986 15	89, 107 13	308 25	Publication discontinued.
Metropolitan Record	3, 434 21	4, 288 79	17, 230 69	14, 307 79	85, 310 13	74, 561 61	12, 490 47	87, 043 08	.....	Publication discontinued.
Round Table	.....	17 00	3 00	.....	.....	.....	.....	.....	.....	.....
New York Citizen and Round Table, {	2, 233 00	12, 778 53	15, 031 63	22, 371 12	28, 004 98	80, 428 25	3, 518 25	88, 946 50	.....	.....
Irish American	.....	1, 142 61	2, 020 40	17, 454 75	36, 459 50	57, 077 26	15, 449 61	72, 536 87	.....	.....
New York Leader	3, 913 15	15, 365 19	15, 234 41	16, 946 63	7, 043 92	58, 531 29	.....	58, 531 29	.....	Publication discontinued.
Real Estate Record Association	.....	.....	735 50	1, 871 40	89, 101 04	41, 707 94	1, 552 00	43, 259 94	.....	.....
New York Courier	1, 677 00	9, 768 61	6, 957 25	2, 003 34	.....	20, 403 20	3, 764 75	24, 170 95	.....	.....
Stockholder	.....	7 20	532 35	11, 626 07	8, 041 60	15, 207 22	6, 931 50	22, 138 72	.....	.....
New York Dispatch	2, 936 95	9, 647 77	920 81	11, 675 25	.....	14, 240 78	1, 110 18	15, 250 96	.....	.....
Sunday Times	605 80	1, 952 08	873 50	.....	2, 721 60	5, 652 93	7, 425 00	13, 377 93	.....	.....
Democratic Alliance	.....	.....	.....	6, 932 90	4, 540 00	11, 522 90	.....	11, 522 90	.....	Publication discontinued.
Official Railway News	.....	.....	.....	10, 422 25	684 90	11, 107 15	.....	11, 107 15	.....	Publication discontinued.
New York Argus	.....	.....	30 00	8, 486 82	570 75	9, 087 57	.....	9, 087 57	.....	Publication discontinued.
Freeman's Journal	35 00	1, 509 06	919 40	1, 442 15	3, 939 75	7, 345 36	837 25	8, 682 61	.....	.....
L' Eco d' Italia	2 00	3 10	512 60	2, 154 60	1, 950 00	4, 622 30	3, 672 65	8, 294 95	.....	.....
New Yorker	491 55	1, 678 92	3, 533 83	500 90	159 00	6, 564 20	1, 380 00	7, 944 20	.....	.....
Irish People	.....	230 57	373 15	2, 092 09	4, 000 00	6, 700 72	.....	6, 700 72	.....	.....
Irish Citizen	.....	252 21	830 95	676 85	46 75	1, 866 76	4, 246 60	6, 113 36	.....	.....
Hebrew Leader	13 00	85 61	1, 127 15	1, 815 55	1, 545 20	4, 565 51	894 05	5, 409 56	.....	.....
New York Tablet	.....	868 16	2, 327 40	1, 462 75	.....	4, 648 31	409 60	5, 057 91	.....	.....
Sunday Democrat	.....	.....	.....	4, 000 00	723 00	4, 723 00	.....	4, 723 00	.....	.....
Irish Republic	.....	.....	100 00	4, 424 00	4, 167 15	4, 691 15	.....	4, 691 15	.....	Publication discontinued.
Irish Tribune	.....	.....	2, 116 60	1, 613 50	.....	2, 730 10	500 00	4, 230 10	.....	.....
Spirit of the Times	.....	.....	.....	.....	4, 000 00	4, 000 00	.....	4, 000 00	.....	.....
New York Albion	.....	.....	313 00	91 30	.....	404 20	2, 618 00	3, 022 20	.....	.....
Insurance Real Estate Journal	.....	.....	50 40	1, 250 15	.....	1, 400 55	1, 250 00	2, 650 55	.....	.....
Scottish American Journal	.....	.....	461 00	285 25	.....	978 57	1, 233 60	2, 212 17	.....	.....
Jewish Times	.....	232 32	111 80	.....	217 50	111 30	1, 988 30	2, 097 60	.....	.....
Cosmopolitan	.....	.....	.....	1, 875 00	.....	2, 092 50	.....	2, 092 50	.....	Publication discontinued.
Home Gazette	.....	789 63	995 77	310 80	.....	2, 046 20	.....	2, 046 20	.....	.....
Jewish Messenger	.....	4 00	123 20	309 70	.....	436 90	1, 399 60	1, 836 50	.....	.....
National Quarterly Review	.....	100 00	600 00	637 50	312 50	1, 700 00	1, 735 00	1, 825 00	.....	.....
New York Era	609 65	.....	.....	830 30	.....	1, 429 95	.....	1, 429 95	.....	.....
Police Gazette	.....	.....	.....	.....	.....	1, 250 00	1, 250 00	1, 250 00	.....	.....
Home Journal	.....	.....	.....	.....	730 50	790 50	75 00	865 50	.....	.....
Wall Street Journal	49 00	77 40	128 95	30 00	.....	285 35	533 35	838 70	.....	.....
Frank Lealle's Illustrated News	.....	735 00	.....	.....	.....	796 00	756 00	796 00	.....	.....
Irish World	.....	.....	.....	.....	.....	756 00	756 00	756 00	.....	.....
Emerald Publishing Company	.....	.....	.....	624 60	.....	624 60	.....	624 60	.....	Publication discontinued.
Literary Album	.....	.....	178 65	436 80	.....	615 45	.....	615 45	.....	.....

* A very small part of this is for years prior to 1867.
 † Amounts recommended by Examiners not yet acted upon by the Board.
 ‡ Oswald Ottendorfer, Esq., Proprietor of the New Yorker Staats Zeitung, is unwilling to avail himself of the provisions of a special law passed for the benefit of newspapers, and therefore declines to accept any amount under its provisions.

SCHEDULE A -- (Continued).

NAME OF NEWSPAPER.	1867.	1868.	1869.	1870.	1871.	Total five years.	Allowance by Board of Audit on claims chiefly for years 1867, 1868, 1869, 1870, 1871, remitted & unpaid when presented Comptroller took office.	Total five years, including amounts by Board of Audit.	Remarks.
<i>Weekly Papers.</i>									
Truth Teller	\$384 08	\$188 10	\$366 48	\$384 08	.....	\$384 08	Publication discontinued.
" American Association	440 00	.....	.....	444 25	\$19 20	463 75	Publication discontinued.
Lincoln Journal	408 25	.....	.....	440 00	.....	440 00	Publication discontinued.
Atlantic City Blatter	386 00	.....	408 25	.....	408 25	
American Railroad Journal	388 75	.....	386 00	.....	386 00	Publication discontinued.
.....	88 20	.....	388 75	.....	388 75	
.....	15 00	.....	819 90	.....	819 90	
.....	74 00	41 80	115 00	
.....	118 40	.....	118 40	
.....	80 00	.....	80 00	
.....	68 00	.....	68 00	
.....	56 20	.....	56 20	
.....	55 25	.....	55 25	
.....	45 20	48 20	45 20	
.....	43 00	.....	43 00	
.....	36 50	.....	36 50	
.....	33 00	.....	33 00	
.....	12 00	.....	12 00	
.....	18 00	.....	18 00	
Totals	\$311,287 25	\$352,253 21	\$373,083 27	\$316,446 78	\$312,069 07	\$3,068,729 25	\$500,917 17	\$3,569,646 42	

SCHEDULE B.

Comparative statement of the cost of advertising for the city and county of New York, for the years 1871 and 1872.

Those marked (*) include payments belonging to 1872, made in 1873, and claims of 1872 unpaid.
Those marked (†) are estimated.

NAME OF NEWSPAPER.	1871.	1872.
<i>Daily papers.</i>		
Daily News.....	\$112,675.71	* \$17,182 40
Transcript.....	109,461 65	Nothing.
Daily Star.....	88,413 71	* 7,161 20
Democrat (Pomeroy's).....	92,494 87	Nothing.
Herald.....	56,527 53	* 17,476 80
Express.....	51,285 44	8,824 85
New York Sun.....	44,708 60	* 21,522 00
World.....	57,760 87	* 10,271 60
Commercial Advertiser.....	33,228 31	† 10,000 00
Tribune.....	19,795 50	* 7,047 46
Evening Post.....	8,204 66	54 06
Evening Mail.....	14,079 06	837 65
New Yorker Demokrat.....	8,079 95	Nothing.
Evening Telegram.....	7,091 00	Nothing.
New Yorker Staats Zeitung.....	5,924 65	3,084 80
Abend Zeitung.....	5,484 60	Nothing.
Globe and Evening Press.....	2,055 56	Nothing.
Messenger France-Americain.....	1,949 55	Nothing.
New York Standard.....	1,113 80	134 00
Skandinavisk Post.....	852 50	Nothing.
New York Times.....	558 60	* 785 90
Journal of Commerce.....	182 61	Nothing.
Courier des Etats Unis.....	52 80	Nothing.
Daily Bulletin.....	13 60	Nothing.
Daily Register (official journal).....	.....	* 6,649 78
<i>Weekly papers.</i>		
Sunday Mercury.....	72,415 60	† 6,287 20
Irish American.....	50,917 46	* 9,263 25
New York Atlas.....	43,745 15	5,047 40
Metropolitan Record.....	47,147 35	* 7,776 30
Real Estate Record.....	39,809 54	Nothing.
New York Citizen.....	30,512 38	Nothing.
New Yorker Journal (Wochenblatt).....	21,536 65	* 4,700 00
Sunday Times.....	9,526 05	* 3,271 35
New York Leader.....	7,042 92	Nothing.
Stockholder.....	6,401 10	Nothing.
Democratic Alliance.....	4,540 00	Nothing.
Irish Republic.....	4,167 15	Nothing.
Irish People.....	4,000 00	Nothing.
Spirit of the Times.....	4,000 00	Nothing.
Freeman's Journal.....	3,999 75	Nothing.
Irish Citizen.....	3,530 60	3,017 55
L' Echo d' Italia.....	2,144 40	Nothing.
Hebrew Leader.....	1,775 15	* 7 06
Home Journal.....	865 50	Nothing.
New York Courier.....	889 35	Nothing.
Police Gazette.....	750 00	Nothing.
Sunday Democrat.....	723 00	Nothing.
Official Railway News.....	684 90	Nothing.
New York Argus.....	570 75	Nothing.
New Yorker.....	461 80	Nothing.
Weekly Plaindealer.....	256 45	Nothing.
Atlantische Blatter.....	236 00	Nothing.
Cosmopolitan.....	217 50	Nothing.
News from Germany and Switzerland.....	55 25	Nothing.
New York School Journal.....	45 30	Nothing.
New York Despatch.....	35 64	* 805 50
Jewish Messenger.....	30 00	Nothing.
Wall Street Journal.....	23 55	Nothing.
Irish World.....	6 00	Nothing.
National Quarterly Review.....	312 50	Nothing.
Totals.....	\$1,093,369 87	\$145,550 10
Amount in 1872.....	145,550 10	
Decrease in 1872.....	\$947,819 77	

SCHEDULE C,

Showing claims for Advertising for the City and County of New York presented to the Board of Apportionment and Audit. These claims are principally for the years 1867, 1868, 1869, 1870 and 1871.

NAME OF NEWSPAPER.	Amount claimed.	Amount allowed.	Amount of reduction.
<i>Daily papers.</i>			
Transcript Association	\$186,160 20	Not acted on.	.....
New Yorker Journal.....	125,543 45	\$32,339 70	\$93,203 75
Daily News.....	73,760 30	58,557 60	15,402 70
Daily Star	67,756 20	23,228 60	44,522 60
Evening Mail.....	62,997 00	25,961 25	37,035 05
Commercial Advertiser	59,179 05	*13,825 15	45,353 90
New York World.....	51,401 60	28,014 20	23,387 40
New Yorker Demokrat	65,471 40	38,940 30	26,531 10
New York Herald.....	44,875 50	33,470 80	11,404 70
Evening Telegram.....	37,217 17	12,847 80	24,369 37
New York Times	23,175 00	16,978 80	6,196 20
New York Sun	23,054 80	22,574 40	480 40
Democrat, "Pomeroy's"	53,418 20	34,444 80	17,973 40
Globe and Evening Press.....	79,361 10	12,968 68	66,392 42
Evening Express	14,626 50	7,802 40	6,824 10
Abend Zeitung	12,516 25	3,370 60	9,145 65
Tribune Association.....	30,737 90	16,303 90	14,434 00
Courier des Etats Unis	6,098 75	828 80	5,269 95
New York Standard.....	23,128 30	34 20	23,094 10
Evening Post.....	5,575 80	*1,349 25	4,226 55
New Yorker Staats Zeitung.....	8,679 30	*7,865 60	813 70
Skandinavisk Post.....	4,098 20	3,213 40	884 80
Journal of Commerce	2,613 31	2,580 33	32 98
Messenger Franco-Americain.....	2,023 75	2,364 90	658 85
Gazette.....	4,479 60	250 00	4,229 60
Daily Bulletin.....	4,395 95	531 60	3,864 35
<i>Weekly papers.</i>			
Official Railway News	178,633 43	Not acted on.	.....
New York Argus.....	145,016 06	Not acted on.	.....
Home Gazette	42,219 10	Not acted on.	.....
New York Era.....	113,650 25	Not acted on.	.....
Stockholder	75,871 77	6,981 50	68,940 27
Sunday Mercury	46,831 42	12,864 00	33,967 42
Irish American	33,204 95	15,449 61	17,755 34
Sunday Democrat.....	52,458 10	Not acted on.	.....
Irish People	50,415 60	Not acted on.	.....
New York Atlas	26,896 21	9,936 15	16,960 06
Metropolitan Record	21,643 37	12,480 47	9,162 90
Irish Citizen.....	19,719 25	4,946 60	15,472 65
New York Leader.....	14,144 25	Not acted on.	.....
N. Y. Citizen and Round Table.....	11,425 55	3,518 25	7,907 30
Sunburst	33,182 30	Not acted on.	.....
Sunday Times	15,239 85	7,725 00	7,514 85
New York Courier.....	8,902 90	3,764 75	5,138 15
Police Gazette.....	7,370 00	1,250 00	6,120 00
Wall Street Journal.....	6,138 30	553 35	5,585 45
N. Y. Dispatch	6,530 88	1,116 18	5,414 70
Irish Tribune.....	4,714 50	500 00	4,214 50
New Yorker	4,377 15	1,330 00	3,047 15
New York Albion.....	5,532 50	2,618 00	2,914 50
Scottish American Journal	4,305 10	1,233 60	3,071 50
Real Estate Record Association	5,133 60	1,552 00	3,581 60
Cosmopolitan.....	6,314 70	Disallowed.	6,314 70
American Artizan	4,136 50	Disallowed.	4,136 50
Plainedealer	4,465 35	19 20	4,446 15
New York Tablet.....	4,799 70	409 60	4,390 10
L' Eco d' Italia	7,677 45	3,672 65	4,004 80
Irish Democrat	29,993 10	Disallowed.	29,993 10
Irish World.....	7,338 80	756 00	6,582 80
Banner of Liberty	7,778 00	Disallowed.	7,778 00
Emerald and American Celt.....	10,841 20	Disallowed.	10,841 20
Spirit of the Times.....	3,305 00	Not acted on.	.....
St. Peter.....	3,537 60	Disallowed.	3,537 60
Jewish Messenger.	3,916 00	1,399 60	2,516 40
Insurance and Real Estate Journal	2,787 00	1,250 00	1,537 00
Jewish Times	2,217 90	1,936 30	231 60

SCHEDULE C—(Continued).

NAME OF NEWSPAPER.	Amount claimed.	Amount allowed.	Amount of reduction.
<i>Weekly papers.</i>			
College Review.....	\$1,600 00	Disallowed.	\$1,600 00
Freeman's Journal	895 50	\$687 25	58 25
Hebrew Leader.....	1,690 90	824 05	866 85
New York School Journal.....	309 90	45 80	263 90
Heart and Hand	480 00	Disallowed.	480 00
Corner Stone	346 95	Disallowed.	346 95
Red Flag	298 00	Disallowed.	298 00
New York Programme.....	105 00	Disallowed.	105 00
Irish Republic.....	686 40	Disallowed.	686 40
Home Journal	270 00	75 00	195 00
Engineering and Mining Journal	242 50	Disallowed.	242 50
Literary Album.....	223 90	Disallowed.	223 90
American Railroad Journal.....	274 90	41 00	233 90
Mercantile Journal ...	48 75	Disallowed.	48 75
National Quarterly Review...	4,812 50	125 00	4,687 50
Totals	\$2,112,236 57	\$500,917 17	\$791,635 11
Amount not acted on.....	.....	.....	\$819,684 29
Total reduction so far.....	.....	.....	\$791,631 11

Those marked (*) are the amounts recommended by the examiners.
† Oswald Ottendorfer, Esq., proprietor of the New Yorker Staats Zeitung, is unwilling to avail himself of the provisions of a special law passed for the benefit of newspapers, and therefore declines to accept any amount under its provisions.

SCHEDULE D,

Showing total amounts paid for advertising by the city and county of New York, for five years from 1867 to 1871 inclusive.

Year.	Amount.
For the year 1867	\$211,327 25
For the year 1868	552,253 21
For the year 1869	676,662 97
For the year 1870	816,446 78
For the year 1871	*1,093,369 87
Total	\$3,350,060 08
Amounts allowed by the board of audit of claims prior to 1871.....	219,616 37
Total	\$3,569,676 45
NOTE.—A large number of unpaid claims do not appear in this total, amounting to.....	1,611,319 40
Making an aggregate amount claimed for five years.....	\$5,180,995 85

* This includes the amounts allowed by the board of audit or reported by examiners for 1871.

SCHEDULE E.

Form of report of Examiners on claim of

COMMON COUNCIL.

DATE.			No.	CHARGES AS PER BILL.					REPORT OF EXAMINERS.					REVIEW.				
Year	Month.	Day.		Lines.	Times.	Total lines.	Rate.	Amount.	Lines.	Times found.	Times allow'd.	Total lines.	Rate.	Amount.	Times.	Total lines.	Rate.	Amount.
1870.	Apr. 26..	Dec. 28..	A 1,2,5,7, 9..... B 2,4,6,8, 10.....	123, 233	1	123, 233	25	\$33, 309 50	..	1	..	70, 469	15	\$10, 570 35	..	..	..	..
1871.	Jan. 2..	May 10..		40, 932	1	40, 932	25	10, 233 00	..	1	..	21, 650	15	2, 247 50	..	..	..	..
1870.	Apr. 27..	Dec. 31..		104, 859	1	104, 859	25	26, 214 75	..	1	..	55, 460	15	8, 319 00	..	..	..	..
1871.	Jan. 2..	May 10..		26, 333	1	26, 333	25	6, 534 50	..	1	..	18, 931	15	2, 089 65	..	..	..	..
				\$76, 341 75				\$24, 236 50										

BOARD OF APPORTIONMENT.

Year	Month	Day	C	100	4	400	25	\$100 00	278	15	\$41 70	..	..	..
1871.	May	6..	Publications	25	2	50	25	12 50	84	15	5 10	..	..	..
1871.	May	8..	Special notice.....	206	1	206	30	110 40	199	15	29 85	..	..	..
1871.	May	24..	Communication					\$322 90					deduct	\$76 65

BOARD OF ASSESSORS.

Year	Month	Day	D 1.....	126	10	1, 200	30	\$378 00	731	12	\$87 73	..	..	..
1870.	Dec.....	31..	Building basin, 5th avenue...	134	10	1, 340	30	402 00	766	12	91 93	..	..	..
1870.	Dec.....		Building sewer in 67th street,					\$780 00					\$179 64	..
1871.	Jan	19..	Stafford pav'mt in 7th avenue,	231	10	2, 210	30	\$663 00	1, 279	..	..	..	..	..
1871.	Feb.....	2..	Building sewer in 7th avenue,	155	10	1, 550	30	465 00	1, 888	..	..	..	..	..
1871.	Feb.....	14..	Belgian pav'mt in 63d street..	191	10	1, 910	30	573 00	1, 083	..	..	..	..	..
1871.	March...	2..	Concrete pav'mt in 11th st...	147	10	1, 470	30	441 00	1, 835	..	..	..	..	..
1871.	March...	15..	Belgian pav'mt in 63d street..	190	10	1, 900	30	570 00	1, 083	..	..	..	..	..
1871.	April	11..	Crosswalk in 11th street.	195	10	1, 950	30	585 00	1, 114	..	..	..	..	..
1871.	May	19..	Basin at Whitehall street...	133	10	1, 330	30	414 00	1, 783	..	..	..	..	..

1871.	June...	1..	Belgian pav't in 3d avenue...	120	10	1,300	30	390 00	714	...	...	...
1871.	July ..	5..	Belgian pav't in 4th street...	116	10	1,160	30	348 00	683	...	...	...
1871.	July ..	29..	Belgian pav't in 33d street...	126	10	1,360	30	408 00	706	...	...	...
1871.	Aug ..	16..	Belgian pav't in 1st avenue...	141	10	1,410	30	423 00	763	...	...	...
1871.	Sept ..	8..	Belgian pav't in Ludlow st...	166	10	1,660	30	498 00	931	...	...	...
1871.	Oct ..	6..	Belgian pav't in Eldridge st...	272	16	2,720	30	816 00	1,536	...	...	...
								\$4,800 00		...	...	...
1870.	Feb ..	19..	30th street	84	37	2,368	30	\$710 40	573	...	...	...
1870.	Feb ..	11..	Lexington avenue	76	16	1,316	30	394 80	590	...	...	...
1870.	Feb ..	11..	131st street.....	60	25	1,520	30	456 00	773	...	...	...
1870.	March..	3..	68th street	60	26	1,680	30	504 00	1,273	...	...	...
1870.	April...	5..	89th street	63	29	1,793	30	538 40	1,352	...	...	...
1870.	April...	12..	New avenue	89	30	2,670	30	801 00	2,032	...	...	...
1870.	April...	29..	78th street	60	30	1,800	30	540 00	1,354	...	...	...
1870.	May ..	20..	97th street.....	59	29	1,711	30	513 00	1,297	...	...	...
1870.	May ..	30..	117th street.....	64	29	1,856	30	556 80	1,406	...	...	...
1870.	May ..	30..	129th street.....	61	28	1,708	30	512 40	1,293	...	...	...
1870.	June ..	10..	Lafayette place	34	13	312	30	93 60	1,206	...	...	...
1870.	Aug ..	24..	Riverside park	21	30	480	30	144 00	818	...	...	...
								\$5,711 70		...	...	...

COMMISSIONERS OF ASSESSMENTS.

DEPARTMENT OF PUBLIC WORKS.

1871.	Feb.....	26..	et.....	25	8	300	30	\$90 00	111	12	\$13 28	..
1871.	April ..	8..	urch streets ..	107	15	1,805	30	481 50	301	12	108 12	..
1871.	May ..	6..	ater pipe.....	30	10	200	30	60 00	114	12	13 08	..
1871.	May ..	17..	et	73	12	936	30	230 80	533	..	....	..
1871.	June ..	21..	street.....	118	10	1,180	30	354 00	553	..	....	..
1871.	July ..	7..	et.....	11	10	110	30	33 30	94	..	....	..
1871.	July ..	25..	Public baths ..	11	10	110	30	33 00	49	..	....	..
1871.	July ..	26..	Willet street ..	11	10	110	30	33 00	49	..	....	..
1871.	July ..	27..	..	119	13	1,547	30	464 10	339	..	....	..
								\$1,618 60			\$135 19	

COUNTY CLERK.

1870.	April	19.	Jurors' notice	19	10	190	35	\$47 50	68	12	\$9 96	..
1870.	May	10.	Jurors' notice	19	10	190	30	57 00	70	12	9 48	..
1870.	June	6.	Jurors' notice	12	9	103	30	33 40	55	12	6 60	..
1870.	July	5.	Jurors' notice	12	5	60	30	18 00	35	12	4 20	..
1870.	Aug	5.	Jurors' notice	13	10	130	30	39 00	37	12	10 44	..
1870.	Sept	3.	Jurors' notice	21	10	210	30	63 00	155	12	18 73	..
1870.	Oct.	8.	Jurors' notice	15	10	150	30	45 00	113	12	13 56	..

SCHEDULE E — County Clerk — (Continued).

DATE.			No.	CHARGES AS PER BILL.						REPORT OF EXAMINERS.						REVIEW.		
Year	Month.	Day.		Lines.	Times.	Total lines.	Rate.	Amount.	Lines.	Times found.	Times allowed.	Total lines.	Rate.	Amount.	Times.	Total lines.	Rate.	Amount.
1870.	Nov ...	17..	30	3	90	80	\$97 00	..	..	..	47	12	\$5 64	..	..	..	..
1870.	Dec.	9..	25	5	125	80	87 50	..	..	..	88	12	9 96	..	..	..	..
							\$365 40	..	..	..				\$88 56	..	..	..
1871.	Jan.	10..	26	10	260	80	\$78 00	..	..	..	183	12	31 96	..	..	..	..
1871.	March ..	15..	24	10	240	80	72 00	..	..	..	157	12	18 84	..	..	..	..
1871.	April ...	10..	26	10	260	80	78 00	..	..	..	165	12	19 80	..	..	..	..
1871.	May	8..	21	10	210	80	63 00	..	..	..	139	12	16 68	..	..	..	..
							\$391 00	..	..	..				\$77 28	..	..	..

BUREAU OF ELECTIONS.

1870.	Feb.	2..	H 2	17	2	34	80	\$10 90	..	..	..	94	..	..	..	..	..	..
1870.	June ...	16..	H 2	13	3	39	80	11 70	..	..	..	96	..	..	..	..	..	..
1870.	June	24..	H 2	11	1	11	80	3 30	..	..	..	10	..	..	..	..	..	..
1870.	Dec.	8..	H 2	17,864	1	17,864	80	5,859 90	..	..	..	15,561	..	\$250 00	..	..	..	..
								\$5,884 40						\$250 00				

COMPTROLLER.

1870.	Jan.	15..	I 1	15	1	15	80	\$4 50	..	..	..	9	..	..	..	..	..	..
1870.	March ..	31..	I 1	15	26	430	80	126 00	..	..	..	944	..	..	..	..	..	..
1870.	May	27..	I 1	45	11	495	80	148 50	..	..	..	845	..	..	..	..	..	..
1870.	July	19..	I 1	11	18	143	80	43 90	..	..	..	114	..	..	..	..	..	..
1870.	Oct.	6..	I 1	14	11	154	80	46 90	..	..	..	115	..	..	..	..	..	..
1870.	Oct.	6..	I 1	14	11	154	80	46 90	..	..	..	115	..	..	..	..	..	..
								\$414 80										

1871.	Jan.	11..	Interest on city stocks	I 1.....	16	24	384	30	\$115 20	200	..	..	..	..	..	..
1871.	March ..	15..	Interest on city stocks	I 2.....	16	11	176	30	52 80	96	..	..	..	..	..	..
										\$168 00						

MAYOR.

1870.	June	10..	Election notice.....	J 1.	411	1	411	30	\$123 30	354	..	..	..	..	..	..
1870.	Oct.	17..	Election notice.....	J 1.....	100	8	800	30	240 00	445	..	..	..	..	..	..
1870.	Sept.	27..	Farragut's obsequies.	J 2.....	80	2	160	30	48 00	120	..	..	..	..	..	..
1870.	Sept.	29..	Farragut's obsequies.	J 2.....	461	1	461	30	138 90	196	..	..	..	..	..	..
1870.	Oct.	27..	Election notice.....	J 3.....	1,455	7	10,185	30	3,055 50	8,610	..	..	..	..	..	..
1870.	Dec.	24..	Inspectors	J 4.....	484	6	2,904	30	871 20	2,460	..	..	..	..	..	..
1871.	Feb.	8..	Fenian reception.....	J 5.	270	1	270	30	81 00	151	..	..	..	..	..	..
										\$4,557 30						

SHERIFF.

1870.	April ...	26..	Election notice.....	K 1.....	135	4	540	30	\$162 00	400	..	..	..	..	..	..
1871.	Aug.	3..	Election notice.....	K 2...	172	15	2,530	30	774 00	1,475	..	..	..	..	..	..
										\$936 00						

COMMISSIONERS OF TAXES AND ASSESSMENTS.

1870.	Jan.	21..	Notice to taxpayers	L	29	10	290	30	\$87 00	125	..	..	..	..	..	..
1870.	April ...	26..	Notice to taxpayers .....	.....	29	13	877	30	113 10	283	..	..	..	..	..	..
										\$200 10						
1871.	Jan.	12..	Notice to taxpayers .....	.....	35	90	3,150	30	\$945 00	1,644	..	..	..	..	..	..
1871.	Jan.	13..	Notice to taxpayers .....	.....	84	43	1,462	30	483 60	823	..	..	..	..	..	..
										\$1,383 60						

DEPARTMENT OF PUBLIC PARKS.

1870.	May	26..	Ordinances	M.....	219	15	3,285	30	\$965 50	2,467
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COMMISSIONERS OF CHARITIES AND CORRECTIONS.

1870.	June ...	24..	Proposals for lunatic asylum...	N ...	30	10	800	30	\$90 00	226
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SCHEDULE E—(Continued).

RECEIVER OF TAXES.

DATE.			No.	CHARGES AS PER BILL.				REPORT OF EXAMINERS.				REVIEW.		
Year	Month.	Day.		Lines.	Times.	Total lines.	Rate.	Amount.	Lines.	Times found.	Times allowed.	Total lines.	Rate.	Amount.
1870.	Dec.	22..	O	20	13	260	80	\$78 00	..	..	..	153	12	\$19 96
Notice to tax-payers														

COMMISSIONER OF JURORS.

1870.	May	14..	Notice	P	41	26	1,068	80	\$319 80	808
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COUNSEL TO CORPORATION.

1870.	Feb.	9..	Broome street	Q	12	12	360	80	\$108 00	233
1870.	Feb.	9..	Central park commissioners..	12	12	504	80	151 20	836
									\$259 20					\$70 05
									\$103,908 55					

Amount reported and found by examiners \$25,033 75
Disallowed on review 70 05
Amount recommended by examiners..... \$25,037 10

New York,, 187...

Examiners.

SCHEDULE F.

Form of Affidavit to be subscribed by Proprietor of the Paper.

STATE, COUNTY AND CITY OF NEW YORK, ss. :

.....being duly sworn says
that he resides at.....and
is proprietor of the....., a newspaper
which was regularly published within said city.....
.....
.....during all the period from
.....
and is the person who has performed such work, as to the due publi-
cation thereof, and that the said newspaper was published as afore-
said and circulated regularly during said time.

That all the items of advertising included in the within and
annexed bills and account accrued prior to the first day of January,
1872.

That the several items charged in the within and annexed bills and
account are, to the personal knowledge of this deponent, just and
true. That the publication of the matter particularly referred to in
said bills and account was actually and in good faith done and made
as specified and charged therein.

That the publication of each and every item of such advertising
was made in said newspaper the number of times stated in said bills
and account, and that none of such publication and advertising was
done without proper legal authority, to clearly justify the charge for
such publication and advertising to be made as stated in the within
and annexed bills and account.

That the prices charged in said bills and account are in every
instance reasonable, proper and correct, and as low, proportionately,
as were charged to or prior by cash customers who advertised in the
columns of said newspaper during the period embraced in the within
bills and account.

That in every instance where any of such publication and adver-
tising as is specified in said bills and account has been made in a
supplement to the said newspaper, there was printed and issued the
same number of supplemental sheets as there were of the regular
edition of such newspaper upon that day, to the extent of its circu-
lation in the city and county of New York.

That this deponent of his own full knowledge, after actual measurement and computation thereof, solemnly swears that the number of lines of advertising charged for in the said bills and accounts are truly stated and were published the number of times mentioned and for the period specified in the said bills and account. That said bills and account neither in whole or in part have been paid, sold or assigned.

.....
Sworn to before me this }
...day of.....18 . }

SCHEDULE G.

Form of Certificate of Examiner.

I have examined the books and files of the department of finance of the city of New York, and I do not find that the claim hereto annexed, or any part thereof, for the advertising in the
..... has been paid.

.....
Examiner to the Board of Apportionment and Audit.
NEW YORK,, 187 .

SCHEDULE H.

Statement of Claims for Advertising for the city and county of New York, presented to the Board of Audit and not yet acted on.

Name of Newspaper.	Amount.
Transcript Association	\$186,160 20
Official Railway News.....	178,633 43
New York Argus.....	145,016 06
Home Gazette.....	42,219 10
New York Era	113,650 25
Sunday Democrat.....	52,458 10
Irish People	50,415 60
Sunburst	33,182 30
New York Leader	14,144 25
Spirit of the Times	3,805 00
Total.....	<u>\$819,684 29</u>

STATE OF NEW YORK.

No. 79.

IN SENATE,

April 16, 1873.

LIST OF GENERAL ORDERS.

G. O.

532. An act to incorporate the New York Financial and Cotton Press Company.
533. (Assembly, 203.) An act to authorize the New York and Oswego Midland Railroad Company to increase its capital stock, to extend its road and increase the number of its board of directors.
534. An act to amend an act entitled "An act to provide for the improvement of Pleasant street, in the city of Utica and town of New Hartford, Oneida county, between Oneida street and Seymour avenue," passed May 21, 1872.
535. (Assembly, 386.) An act authorizing the city of Troy to borrow money to improve the water-works of said city.
536. (Assembly, 518.) An act to authorize the common council of the city of Lockport to raise by tax moneys to pay the present indebtedness of the city.
537. (Assembly, 235.) An act to amend an act entitled "An act to incorporate the Round Lake Camp Meeting Association of the Methodist Episcopal Church of the Troy Conference," passed May 5, 1868.
538. (Assembly, 358.) An act to incorporate the Oneonta Savings Bank, of Oneonta, Otsego county, New York.

G. O.

539. An act to authorize the construction and maintaining of a free foot bridge over the Susquehanna river in the city of Binghamton, and to levy and collect taxes for the payment thereof.
540. (Assembly, 535.) An act authorizing the commissioners of highways in the town of Bethlehem, in the county of Albany, to lay out and open a certain highway in said town of the width of two rods.
541. (Assembly, 114.) An act to grant additional privileges to the Broadway Railroad Company of Brooklyn.
542. (Assembly, 435.) An act in relation to highway labor in the village of Sloansville, Schoharie county, to extend its limits, and to constitute it a separate road district.
543. An act to allow the persons associated as The Chi Psi Society to incorporate under chapter 319 of the Laws of 1848, and to take and hold real and personal estate.
544. An act to authorize the board of education for the city and county of New York to establish a nautical school.
545. (Assembly, 533.) An act to incorporate the Lockport Catholic Literary Union of the city of Lockport.
546. An act to amend an act entitled "An act in relation to common schools in the village of Lockport," passed March 31, 1847, and the acts amendatory thereof.
547. An act in relation to the Wallabout improvement in the city of Brooklyn.
548. An act in relation to the salary of the messenger in the corner's office, in the city and county of New York.
549. (Assembly, 431.) An act to authorize the erection of street lamps and lighting the streets in the village of Pine Plains, Dutchess county.
550. (Assembly, 439.) An act to amend an act entitled "An act to amend act incorporating the village of Sing Sing, in the county of Westchester," passed April 9th, 1853, and the act supplementary thereto and amendatory thereof, passed April 18th, 1859, and also the act supplementary thereto and amendatory thereof, passed April 19th, 1871.
551. (Assembly, 440.) An act to incorporate the fire department of the village of Peekskill.

G. O.

552. (Assembly, 206.) An act to amend chapter 259 of the Laws of 1867, entitled "An act to incorporate the village of College Point, Queens county."
553. An act to facilitate the construction of certain railroads in the city of New York by the Metropolitan Transit Company.
554. An act to authorize the formation of societies for the protection of property.
555. An act to authorize "The Joseph Dixon Crucible Company," a corporation of the State of New Jersey, to hold, mortgage and sell real estate within this State.
556. An act to incorporate the New York Underground Telegraph Company.
557. An act to authorize the trustees of the North American Mineral Land Company, a corporation formed under the law of February 17, 1848, and the amendments thereof, to alienate or sell their real estate or other property.
558. An act to give effect to a deed from the Farmers' Bank of Orwell to Benjamin Cheney.
559. An act to amend an act entitled "An act to authorize the appointment of commissioners to take the proof and acknowledgment of deeds and other instruments, and to administer oaths in Great Britain and France," passed April 17, 1858.
560. (Assembly, 154.) An act to declare Marsh creek, in Allegany county, a public highway.
561. (Assembly, 506.) An act for the incorporation of fire, hose and hook and ladder companies.
562. (Assembly, 179.) An act to incorporate the Anglo-Mexican Railway Company.
563. An act to amend section 3, title 1, chapter 13, part 1, of the Revised Statutes of the State of New York.
564. An act to provide for opening Front street in Long Island City, Queens county.
565. An act to authorize the board of supervisors of the county of Otsego to issue bonds for the benefit of and chargeable to the towns of Cherry Valley and Otsego, whereby to provide means for the payment and extend the time for the levying and collecting of such sums as should be apportioned upon the property

d. o.

of those towns respectively, under chapter 938 of the Laws of 1867.

566. An act to amend an act entitled "An act to amend chapter 721 of the Laws of 1871, entitled 'An act to amend and consolidate the several acts relating to the preservation of moose, wild deer, birds and fish,' passed April 26, 1871."
567. (Assembly, 371.) An act to enable the legal voters of any town or city to determine by ballot whether the sale, exposing for sale, giving away, or suffering to be exposed, sold or given away therein, of intoxicating liquors, shall be prohibited, and to regulate the sale for medicinal, mechanical, chemical or sacramental use, and to provide for the enforcement of this act.
568. An act to amend an act entitled "An act to suppress intemperance and to regulate the sale of intoxicating liquors," passed April 13, 1857.
569. An act to enable the Staten Island Railway Company to have, own and run ferry boats.
570. An act to amend an act entitled "An act to amend 'An act to incorporate the Orient Wharf Company in the county of Suffolk,' passed January 28, 1851," passed March 17, 1860.
571. (Assembly, 165.) An act to incorporate the Saratoga Cemetery Association.
572. An act to amend an act entitled "An act in relation to certain local improvements in the city of New York," passed May 7, 1872.
573. An act to incorporate the International Trust Loan and Investment Company of the United States.
574. (Assembly, 494.) An act to reorganize the village of Gloversville.
575. (Assembly, 260.) An act for the benefit of common schools in the county of Richmond.
576. (Assembly, 325.) An act to amend an act to provide for the improvement of the highways extending from Lansing street, Genesee street and Caroline avenue, in the village of West Troy, to the Loudon road, in the town of Watervliet (highways lying in part in the town of Watervliet and in part in the village of West Troy), and to authorize the board of super-

G. O.

visors of the county of Albany to assess the expense thereof upon the said town, passed April 24, 1872.

577. (Assembly, 601.) An act to amend an act entitled "An act to amend and consolidate the several acts relating to the village of Hornellsville," passed April 9th, 1867.

578. (Assembly, 438.) An act to amend an act entitled "An act to consolidate and amend the several acts relating to the village of Jamestown, and to enlarge the powers of the corporation," passed April 26th, 1869.

579. (Assembly, 264.) An act to amend an act entitled "An act to revise and consolidate the general acts relating to public instruction," passed May 2d, 1864.

580. (Assembly, —.) An act to amend an act entitled "An act to provide for an additional supply of water in the city of Albany," passed March 20th, 1868.

581. (Assembly, —.) An act to authorize the city of Syracuse to fund the floating debt of that city.

582. (Assembly, 87.) An act authorizing the common council of the city of Lockport to raise by tax the necessary means to repair the Hydrant Hose carriage-house in the fourth ward of said city.

583. (Assembly, 456.) An act to organize the village of Monticello into a separate school district, and to provide for the purchase of a site and erection of a school edifice.

584. (Assembly, 262.) An act amending an act entitled "An act to establish free schools in district number three in the town of Flushing," passed April 16, 1857, enlarging said district and authorizing a greater school tax therein.

585. (Assembly, 228.) An act to enable the town of Pike, Wyoming county, to raise five thousand dollars in aid of an endowment of Pike Seminary.

586. (Assembly, 227.) An act to amend an act entitled "An act to establish free schools in school district number four in the town of East Chester, Westchester county," passed June 8, 1853.

G. O.

587. (Assembly, 361.) An act for the relief of Matthew Mackie, of the town of Galen, county of Wayne, and to take certain of his lands out of the Clyde high school district and place it in school district number nine of said town of Galen.
588. (Assembly, 166.) An act to confirm the reorganization of the Baptist Society of Russell, New York, and to authorize the trustees of said society to sell and convey real estate.
589. An act to amend the Revised Statutes in relation to laying out public highways.

STATE OF NEW YORK.

No 80.

IN SENATE,

May 27, 1873.

COMMUNICATION

FROM MAYOR, COMPTROLLER AND CORPORATION
COUNSEL OF THE CITY OF NEW YORK, RELATIVE
TO CERTAIN REPEALING CLAUSES IN THE NEW
CITY CHARTER.

To the Honorable the Legislature of the State of New York:

The undersigned, the mayor, the comptroller and the counsel to the corporation of the city of New York, respectfully represent:

That upon examination they find the provisions of the repealing clauses of the new charter so affect the powers to impose and collect the taxes in the city and county of New York, as to render them indefinite and uncertain, if in some respects they are not entirely repealed.

The undersigned deem it indispensable that further legislation should be had on this subject, and they are of the opinion that the passage of the bills now before your honorable body, entitled, respectively, "An act in relation to the city of New York," and "An act in relation to raising money by taxation in the county of New York for county purposes," is indispensably necessary to enable the proper authorities to carry on the government of the city, and to maintain its credit.

Respectfully submitted.

W. F. HAVEMEYER,

Mayor.

AND. H. GREEN,

Comptroller.

E. DELAFIELD SMITH,

Counsel to the Corporation.

Dated New York, May 26, 1873.

[Senate No. 80.]

SIXTH ANNUAL REPORT

OF THE

B O A R D

OF

State Commissioners of Public Charities

OF THE

STATE OF NEW YORK,

TO WHICH IS APPENDED

THE REPORT OF THE SECRETARY OF THE BOARD.

TRANSMITTED TO THE LEGISLATURE JANUARY 28, 1873.

ALBANY:
THE ARGUS COMPANY, PRINTERS.
1873.

STATE OF NEW YORK.

No. 81.

IN SENATE,

January 28, 1873.

SIXTH ANNUAL REPORT

OF THE

BOARD OF STATE COMMISSIONERS OF PUBLIC CHARITIES.

STATE OF NEW YORK:

OFFICE OF THE STATE COMMISSIONERS OF PUBLIC CHARITIES, }
ALBANY, *January 28, 1873.* }

To the Honorable JOHN C. ROBINSON,

Lieutenant-Governor and President of the Senate:

SIR.—I have the honor to transmit to you the Sixth Annual Report of the Board of State Commissioners of Public Charities to the Legislature, pursuant to the act chapter 951 of the Laws of 1867.

Yours with great respect,

JOHN V. L. PRUYN,

President of the Board.

BOARD OF STATE COMMISSIONERS OF PUBLIC CHARITIES.

NAME.	District.	Residence.	Term expires.
Nathan Bishop	First district.....	New York city ...	January 30, 1873.
Harvey G. Eastman.....	Second district ...	Poughkeepsie.....	January 15, 1873.
John V. L. Pruyn	Third district. ...	Albany	March 23, 1879.
William N. Coit	Fourth district....	Champlain.....	March 23, 1879.
Theodore W. Dwight.....	Fifth district	Clinton	January 15, 1873.
Samuel F. Miller	Sixth district	Franklin.....	January 15, 1874.
Martin B. Anderson	Seventh district ..	Rochester	January 15, 1876.
Vacant	Eighth district....	.....	.....

STATE OFFICERS—EX-OFFICIO MEMBERS.

JOHN C. ROBINSON, *Lieutenant-Governor.*
G. HILTON SCRIBNER, *Secretary of State.*
NELSON K. HOPKINS, *Comptroller.*
FRANCIS C. BARLOW, *Attorney-General.*

OFFICERS OF THE BOARD.

PRESIDENT,

JOHN V. L. PRUYN.

VICE-PRESIDENT,

THEODORE W. DWIGHT.

SECRETARY,

CHARLES S. HOYT.

ASSOCIATE SECRETARY,

JOHN ORDRONAU.

EXECUTIVE COMMITTEE,

JOHN V. L. PRUYN, THEODORE W. DWIGHT,
NELSON K. HOPKINS, MARTIN B. ANDERSON,
SAMUEL F. MILLER.

THE STATE BOARD OF CHARITIES.

Before the printing of this Report was completed, three members were added to the Board, under the Act chapter 571 of the Laws of 1873; the name of the Board was changed to that of "The State Board of Charities," and on the 6th of June, 1873, it was organized as follows:

NATHAN BISHOP	NEW YORK.
HOWARD POTTER	NEW YORK.
BENJAMIN B. SHEARMAN	NEW YORK.
JAMES A. DEGRAUW	BROOKLYN.
HARVEY G. EASTMAN.....	POUGHKEEPSIE.
JOHN V. L. PRUYN	ALBANY.
EDWARD W. FOSTER.....	POTSDAM.
THEODORE W. DWIGHT.....	CLINTON.
SAMUEL F. MILLER.....	FRANKLIN.
MARTIN B. ANDERSON.....	ROCHESTER.
WILLIAM P. LETCHWORTH	BUFFALO.

EX-OFFICIO MEMBERS.

JOHN C. ROBINSON	LIEUTENANT-GOVERNOR.
G. HILTON SCRIBNER	SECRETARY OF STATE.
NELSON K. HOPKINS.....	COMPTROLLER.
FRANCIS C. BARLOW.....	ATTORNEY-GENERAL.
JOHN ORDRONAU.....	STATE COMMISSIONER IN LUNACY.

OFFICERS OF THE BOARD.

JOHN V. L. PRUYN....	PRESIDENT.
THEODORE W. DWIGHT .	VICE-PRESIDENT.
CHARLES S. HOYT.....	SECRETARY.



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REPORT.

The Board of State Commissioners of Public Charities respectfully submit the following as their Sixth Annual

REPORT:

The powers and duties of the Board having been referred to in former reports, they deem it unnecessary to particularize them anew. They will be found in chapter 951 of the Laws of 1867, organizing the Board, and in subsequent acts.

As the various institutions close their financial year at different periods, their reports do not all reach the Board in time to enable it to embody the results presented by them in its own annual report. It is therefore respectfully suggested that the managers of all charitable institutions, subject to the visitation of the Board, be required by law to report to it at a specified day, and in time to be available for the purposes of its annual report.

As many suggestions made in our last report have not been acted upon, and the necessities that called for them still exist, the Board deem it to be their duty again to call the attention of the Legislature to them. They relate to such important topics as the visitation of private lunatic asylums or retreats; the establishment of sundry work-houses, and juvenile reformatories for females, and the revision and codification of the laws relating to the insane as wards of the State.

The Secretary of the Board has been occupied during the past year in making his usual inspections, outside of his office duties, and his report of the condition of our alms-houses furnishes gratifying proof of the good effects resulting from such

supervision as this Board has uniformly endeavored to exercise over them. Much credit is also due the superintendents of the poor for endeavoring to carry out such reforms in the management of their alms-houses as the Board has, from time to time, pointed out to them. Although without power to coerce, these suggestions have always been kindly received, and acted upon in proportion to the ability of the officers to whom they were made.

The Board have also, in view of the increasing duties devolving upon their Secretary, felt constrained to employ an Associate Secretary during the past year, chiefly to aid in the office work. With the small appropriation granted them for clerical assistance, they have only allowed themselves to retain the services of such Associate Secretary for a few months, and while engaged in the preparation of their report. But in view of the necessity that such Associate Secretary should visit our State charities in order to inform himself of their condition, and be thus the better able to discharge his duties, the Board respectfully ask that an appropriation may be hereafter made sufficient to meet this new item of indispensable expenditure.

The members of the Board at the date of this report are :

Nathan Bishop.....	First district.
Harvey G. Eastman.....	Second district.
John V. L. Pruyn.....	Third district.
William N. Coit.....	Fourth district.
Theodore W. Dwight	Fifth district.
Samuel F. Miller	Sixth district.
Martin B. Anderson	Seventh district.
Vacant.....	Eighth district.

STATE OFFICERS—EX-OFFICIO MEMBERS.

John C. Robinson.....	<i>Lieutenant-Governor.</i>
G. Hilton Scribner.....	<i>Secretary of State.</i>
Nelson K. Hopkins	<i>Comptroller.</i>
Francis C. Barlow	<i>Attorney-General.</i>

Dr. Charles S. Hoyt continues to be the Secretary of the Board, and has, as heretofore, proved himself most faithful and indefatigable in the discharge of his duties.

The various institutions subject to the visitation of the Board may be classified as follows :

- I. State Charities.
- II. Local Charities..
- III. Incorporated Charities.

PART I.—STATE CHARITIES.

The Board having, in its last report, fully discussed the condition of our lunatic asylums, as among the most prominent and important of our State charities, and having also expressed their opinion upon the question of the disposition of the chronic insane, do not deem it necessary to repeat those views. The latter problem is working itself out to a final solution at the Willard Asylum, and may be left to time for its vindication.

During the past year the Secretary has been engaged in a most arduous undertaking, relating to the hitherto unrecorded insane in the State, wherever to be found. Letters of inquiry have been dispatched to physicians throughout the State, asking for details of information upon this subject within their personal knowledge. The amount of correspondence required by this undertaking has been so great as to compel the Board to employ some clerical assistance, it being impossible for the Secretary, with all his other duties, to carry out this new scheme unaided. Nearly an entire year has been consumed in collecting the desired information, and the statistical results will, for the first time in the history of our State, exhibit the actual number of its insane population, both in public institutions and elsewhere. The Secretary's tables, to which reference is made, will more fully show these facts. From these,

it will be seen that no ordinary census can ever be depended upon for accurate information upon a subject of this kind, where an inquirer so often finds obstacles of family pride blocking the way to any public investigation.

The Board have also been engaged in several important inquiries relating to the management of public institutions against which charges had been specifically preferred, viz. :

First. The Juvenile Guardian Society of the City of New York, against which charges of maladministration were alleged. These charges, upon an investigation being made by Messrs. Dwight and Bishop, assisted by Secretary Hoyt, were found, in their judgment, to be substantiated by evidence, and a report thereon was accordingly made to the Comptroller, advising the withholding of the payment of the last annual appropriation to such institution. A copy of the report is hereto appended, to which reference is made.

Second. The Dispensary and Hospital Society of the Women's Institute, against which charges were made of having obtained a fraudulent appropriation, from the Legislature. These charges, upon investigation by Messrs. Dwight, Bishop and Hoyt, were found to be substantiated by evidence, and a report thereon was made and transmitted to the Legislature on the 13th of February, 1872. Proceedings were subsequently instituted by the Attorney-General against the society for the purpose of annulling its charter, and the court having pronounced judgment in favor of the State, the assets of this corporation were accordingly placed in the hands of a receiver. The report will be found in the Assembly Documents of 1872, No. 95.

Third. The House of Refuge on Randall's Island, against which charges of mismanagement, cruelty and abuse of inmates were preferred, as also of denying them proper religious instruction. The first charges, upon investigation made by Commissioner Bishop and Associate Secretary Ordronaux,

were found to be unsupported by evidence, and they reported accordingly ; and as to the last charge, relating to religious instruction, they referred the same to the Board for judicial decision. A copy of the report of the committee is hereto annexed.

As this Board has a power of visitation only, and is without authority to interfere with or to control the management of the institution, the question in regard to religious instruction, which reaches to many other institutions in the State, is submitted to the Legislature as alone competent to deal with and to decide it.

The Board will at any time, if desired, communicate to the Legislature a copy of the testimony taken before the committee on this investigation.

In some minor matters the Board has suggested to the officers some change in the management which they think to be desirable.

Fourth. The Department of Public Charities and Correction of the City of New York, against which charges of mismanagement in relation to the administration of the New York City Asylum for the Insane, on Ward's Island, were preferred by Dr. M. G. Echeverria, late its resident physician, such charges alleging overcrowding, underfeeding, with deficiency in supplies of clothing, and general neglect in the supervision of its affairs. These charges were investigated by Commissioners Bishop and Dwight and Associate Secretary Ordronaux, and were found to be unsupported by the evidence adduced, and they reported accordingly on the 7th day of January, 1873. For report see appendix.

The Board renew the suggestion expressed in their last report, that the powers granted to them to visit and inspect all State institutions be enlarged so as to include all private asylums, homes or retreats where insane persons are treated for compensation ; and that they have the further power to grant

licenses to persons desiring to keep such institutions, and to establish rules for their government and management.

In this connection also, and considering the state of the public mind on the subject of possible abuses in lunatic asylums, and the general desire felt that some more active supervision of all the insane be provided for by special legislation, the Board are of opinion that the time has now arrived when their powers, as guardians of the dependent classes, should be extended over all State wards, criminals alone excepted.

They accordingly ask for such legislation as will enable them :

First. To appoint an experienced, specially qualified commissioner, whose duty it shall be, under the general supervision of the Board, to receive direct communications from any person confined in a lunatic asylum, without interference from any superintendent or board of managers.

Second. To take the supervision of asylums, and, in connection with such persons as the Commissioners shall appoint, make special examinations into cases of alleged improper detention, abuses of power, or deficiencies in the care of patients, which may be made against the managers or officers of any lunatic asylum in the State.

Third. That the Legislature so enlarge the annual appropriation to the Board, as to enable it to secure the services of a person of competent attainments for the duties of such commissioner, and to pay clerk hire and contingent expenses.

The Board deem such legislation necessary, as well to protect the managers and officers of lunatic asylums from unjust suspicion and detraction, as to provide additional safeguards for the insane committed to their custody.

EXPENDITURES IN THE CONSTRUCTION OF PUBLIC INSTITUTIONS.

The pressing necessity for additional provision for the insane has, within the past five years, demanded from the Legislature

the establishment of a number of new asylums. These institutions are now in process of erection, and reports have already been made of their progress. To these we will hereafter refer. Local pride has undoubtedly entered into the spirit of the construction of these buildings, and the gift of a site has, to a certain extent, seemed to impose upon the managers liberality in the expense of construction. It can hardly be wondered at that gratitude to a community of donors should desire to express itself in generosity rather than parsimony of construction; for while no class of institutions so abundantly justify expenditure beyond strict utilitarian limits, it is even here no less a duty to exercise that prudence which constitutes the golden mean between right and expediency. A gift is sometimes the most costly of benefactions to its recipient, as is constantly seen in the endowments made to charitable corporations; and the reason is, that it often compels the beneficiary to act upon a different basis of expenditure, in order to enjoy the trust, than he otherwise would. Stimulated by local pride and prompted by gratitude, both which are honorable motives, it is a very natural consequence that boards of managers and building committees should desire to gratify the expectations of the community upon whose soil, gratuitously given, they have been invited to build a public institution.

But it should be remembered, in this connection, that while the ground costs nothing, it is the money of the people of the whole State that is being used in the construction of the building and will be required for its support, and their funds are to be expended upon a basis entirely different from that which governs a strictly local or private charity. For while everything may be legally done, so far as conforming to the letter of the law is concerned, yet the intent and spirit lying behind the mere verbal expression must not be overlooked. The Board accordingly feel it their duty to repeat the views expressed by them upon this subject in their last report, in the words following:

“There is a natural tendency in building with public moneys to provide for contingent measures of criticism which may either never come to pass, or, if they do, are of no lasting consequence. This is a prevision of morbid cautiousness which should not be encouraged. All that is required is a fair and reasonable development of the idea committed by the Legislature to any board of managers for execution. As a general rule these boards do not err in discharging their particular trust. But we believe, and so desire to express our judgment, that a Legislature always errs whenever it fails to specify the limits within which such managers shall execute their trust, the general plan upon which they shall model the institution to be erected, with some recommendations as to the style of its buildings. All this should be done, and may be, without in the least degree hampering the labors of the managers or the architect. It is to the Legislature that the people look for a just exercise of the power of founding public corporations, and particularly where such grants involve the expenditure of public moneys in fulfilling their conditions, and, in this respect, we think a different course should be pursued in the future, and no new institutions founded without specifying, as far as may be done in the act creating them, the precise *will and ideas* of the Legislature upon the subject, together with distinctive prohibitions against transcending a fair and reasonable interpretation of such legislative will.

“And the Board earnestly recommend that in future the whole subject of the increase of the number of our State charitable institutions, together with the plans of buildings, and a careful estimate of their proposed cost, be submitted by the Legislature to this Board for its report previous to legislative action.”

STATE LUNATIC ASYLUM AT UTICA.

During the past year some inclosed verandahs have been added, by way of extension, to the female wards of the first and second class, thereby securing a more sunny sitting-room for the inmates. The value of sunshine is only next to that of fresh air in the treatment of diseases of the nervous system, and the popularity of these extensions as places of habitual resort shows the instinctive want which they satisfy.

Much progress has also been made in the new department of pathology and micro-photography, and the institution will soon be prepared to supply, at cost, duplicate copies of the preparations in its collection. The number of post-mortems made last year was twenty-four, a larger aggregate than is probably represented by any other institution in this country. This fact cannot but tell advantageously upon the knowledge of the causation of insanity, and in proportion as these examinations are tabulated will they enable us to reconcile differences of opinion touching a disease around which much superstition still lingers.

If it can be shown that uniform lesions of either the brain or spinal cord accompany certain diseases whose locality is now sufficiently indicated by physical symptoms, or if, in the present difficulty of localizing the efficient point of departure of some of those obscure nervous diseases, the remoteness of whose effects baffles all efforts to trace them consecutively to their proper sources, it can be shown that these pathological riddles may be explained by one general key which solves them all, then the treatment of nervous diseases will be simplified to such a degree as to enable the scientific physician to make a direct instead of an inferential diagnosis, and to address his remedies to those transitional states which are the precursors to serious organic changes. It is too often the case now that the first recognizable symptoms of nervous disease are also the conclusive proofs of an accomplished degeneration

of tissue which medical skill can only hinder, but not permanently arrest. The best test of the value of these pathological studies, therefore, is the light which it can throw upon those physical conditions immediately preceding organic changes. And in order to secure results that may be formulated as laws, time and repeated affirmations must reduce these observations to conclusive proofs of an uniformity of lesion transcending mere similarity, and accepting nothing short of identity. Precipitancy in such a field is fatal to precision.

WILLARD ASYLUM FOR THE INSANE.

Since our last report this institution has been rapidly developing itself upon the plan contemplated by its board of managers, and calculated to afford accommodations which may be almost indefinitely increased. The main building, already completed, furnishes accommodations for 250 patients of each sex, and it is here that the more excitable class are collected. One mile from the main asylum is the former State Agricultural College building, called Branch No. 1, where are now gathered about 200 female patients of a quiet character. An assistant physician resides here exercising all necessary supervision of the inmates. The experience of more than a year's occupancy of this Branch has satisfied the managers of the safety and efficiency of this arrangement.

In order to balance the above system so as to apply it to male patients in a similar mental state, and capable of doing some farm-work, a group of detached buildings, located near the main asylum, and designated Branch No. 2, has been constructed within the past year, which will accommodate 200; the whole number thus provided for now reaches 900. Encouraged by the success of Branch No. 1, and the promise of similar results from Branch No. 2, the managers would desire to erect still another building, to be known as Branch 3, where "aged, quiet and inoffensive women" could be cared

for. The Board would express their approbation of the general management of the institution, and of the success which has thus far attended its operations.

In its last report the Board fully explained the aims and objects of this institution as an asylum for the chronic insane, and the work it was doing in emptying the poor-houses of that class of inmates. The rapid filling of its wards, and the call for more buildings, vindicate the wisdom of making suitable provision for such persons. The opinion expressed in that report, that such provision should be continued in the manner therein indicated, so as to include all the chronic insane, is now reaffirmed.

HUDSON RIVER STATE HOSPITAL.

This institution has made no progress in building since our last report, owing to the failure of a sufficient appropriation from the last Legislature. We think this measure was an unfortunate one in an economic sense. At the termination of last year's labors, the mechanics employed in the construction, not wishing to remain idle during the winter, volunteered to work, on the credit of an anticipated appropriation, in getting out stone, making window-frames and doors, preparing floor-timbers and floorings, and generally having everything ready to proceed with in the spring as soon as the season for building had arrived. By these means the State actually gained much time by having everything prepared and ready to be put together during the long days of summer, and thus securing the completion of another wing early in the succeeding autumn. This would have occurred but for the failure of a sufficient appropriation. The amount voted, \$150,000, simply paid for materials collected and work done during the winter, and left nothing with which to proceed anew in the spring. In consequence of which the work has been suspended in the presence of the materials accumulated, and a whole year has

been lost, while the applications for admission within its walls are constantly increasing, and its wards are already overcrowded.

There is no economy, in the end, in building by patches. And while the system of annual appropriations is a political necessity, it might still be arranged so as not to defeat the very purposes of economy which it contemplates. Much useful work in preparing materials can be done in winter; but if an appropriation is intended only to cover the summer work that follows it, necessarily that work will be less complete in the end (some time being always required to prepare the way for building) than if a sum were appropriated sufficient to carry the work through the year without interruption or renewal of contracts. Whatever difference of opinion may have existed as to the plan of building and the average cost per patient of this institution, it is now too late to raise that question. Good economy on the part of the State dictated that the buildings should be properly finished as soon as practicable. We accordingly trust that the present Legislature will repair the omission of its predecessor by voting a suitable appropriation to this institution.

BUFFALO STATE ASYLUM FOR THE INSANE.

This institution, created to meet the wants of the insane in the western portions of the State, was organized on the 23d day of April, 1870, by an act of the Legislature, supplemental to the act of March 23d, 1869, authorizing the Governor to appoint "five commissioners to select a suitable site in Western New York, in the Eighth Judicial District, on which to erect an asylum for the insane."

Being in so early a part of its construction, much relating to it must be considered as merely prospective. Yet it is possible to review its plans and to conjecture from the basis on which they rest, what are the evident conclusions toward which they

tend, both in a professional and scientific, as well as a financial and economic way.

The site of the asylum has been in all respects judiciously selected, both in obedience to the intent of the Legislature, as well as to the special needs of such an institution. It is near the centre of that population numerically which it was designed to accommodate—it is easily accessible from all quarters of Western New York—the land on which it is to be built was the gift of the city of Buffalo, and from its general configuration requires little or no alteration of its surface to meet either sanitary or architectural requirements ; and, lastly, the city of Buffalo has bound itself to furnish a perpetual supply of water, free of cost, to the institution. It is seldom, indeed, that similar advantages are offered to a public institution at its inception, and it is not strange therefore that, with the concurrence of so many fortunate unities to surround it at its start, the commissioners should have selected the spot which they did. The land thus given (amounting to 203 acres) cost the city of Buffalo sixty thousand dollars, and the supply of water guaranteed by it will be worth not less than five thousand dollars annually.

The grounds were inclosed last year by a substantial picket fence, seven feet high, and one mile and three-quarters in length on the east, north and west sides, and three thousand and forty feet of close board fence, six feet high, were constructed on the south or front line.

The President of the Board of Managers has communicated, through the secretary, the following interesting facts relating to the existing condition of this asylum, accompanied by exhibits of expenditures, which we subjoin :

The walls of the administration building and male wards "A" and "B," with three connecting corridors, are now up ten (10) feet high on the first story, and the kitchen, with its connecting corridor to male ward "B," are nearly up to the required height. The large

plenum of seventy (70) feet area, which connects with male ward "A" and female ward "A," and which extends five hundred (500) feet in the area to fan room, is completed, together with the foundation walls of the fan room, engine room, boiler room, coal room, workshop, and foundation of chimney is up to grade, and the horizontal flue to upright shaft is also completed.

About twelve thousand (12,000) yards of excavation and grading has been accomplished.

Three thousand two hundred and fifty (3,250) cords of rubble masonry in foundations and walls up to water-table, and five hundred (500) cords in wall above the water-table have been laid.

Cut stone laid in walls, fifteen thousand (15,000) feet.

Irregular block work walls, thirty-five thousand (35,000) feet.

One million six hundred and ten thousand (1,610,000) brick, and eighty thousand feet of joist laid in walls.

Four hundred feet of fifteen-inch and nine hundred feet of twelve-inch glazed sewer pipe have been laid.

The stone, lime, sand and lumber were furnished by contract, and was awarded to the lowest bidder in every instance.

The stone for the foundations is of limestone. Part of it was furnished by contract at seven dollars per cord, and part of it was quarried by the days' work. The latter cost a trifle over six dollars per cord, delivered on the ground, so that the average cost was about six dollars and fifty cents per cord.

The stone for the exterior facing of the buildings is the Medina brown sandstone, the cost of which, delivered on the grounds, is as follows:

For dimension stone, 75c. per cubic foot.

For irregular block work, 80c. per cubic foot.

The cost of cutting and dressing the same:

Dimension stone, 70c. per lineal foot.

Irregular block work, 22c. per lineal foot.

The cost of the mason work, in laying the foundation up to the water-table, was \$6.50 per cord, measured in the wall, all material furnished by Board of Managers.

For laying the stone above and including the water-table the cost is \$26.50 per cord; and for laying the brick \$6 per thousand, measured in the wall. Material furnished by Managers.

The cost of brick, delivered on the ground, is \$7.45. per 1,000.

The cost of water-lime, delivered, \$1 per bbl. of 265 lbs.

The cost of quick-lime, delivered, 90c. per bbl. of 230 lbs.
 The cost of lumber delivered at dock or yard :
 Pine lumber, best quality, \$39.50 per 1,000 feet.
 Pine lumber, common, \$17.50 per 1,000 feet.
 Pine lumber, culls, \$15 per 1,000 feet.
 Cherry, \$40 per 1,000 feet.
 Maple, \$17 @ \$27.50 per 1,000 feet.
 Oak lumber, \$18 @ \$27.50 per 1,000 feet.
 Walnut lumber, \$56 per 1,000 feet.
 Sand, delivered on ground, \$1.45 per cubic yard.
 The wages of laboring men during the season have been \$1.75 per day. Teams \$4.50 per day. Single horse and cart \$3 per day.
 The wages of mechanics are :
 For carpenters, \$2.50 to \$3 per day.
 Stone masons, \$3 per day.
 Bricklayers, \$3 per day.
 The following is the amount of material on hand :
 1,000 cords of rubble stone.
 20,000 feet of dimension stone.
 89,000 feet of irregular block work.
 2,000 yards of sand.
 800,000 brick.
 200,000 feet of joist and timber.
 66,855 feet of oak lumber.
 10,000 feet of chestnut lumber.
 26,360 feet of walnut lumber.
 71,233 feet of cherry lumber.
 117,980 feet of maple lumber.
 461, 247 feet of pine.

BUFFALO STATE ASYLUM FOR THE INSANE.

Abstract of Expenditures from Jan. 1 to November 1, 1872.

Expenses of board of managers	\$91 00
Water-lime, cement	660 53
Foundation stone	7,464 90
Masonry in walls and partitions.....	28,726 89
Grading Forest avenue	2,813 80
Lumber	23,937 69
Carried forward.....	<hr/> \$63,694 81

Brought forward	\$63,694 81	
Labor	9,783 46	
Office expenses	261 90	
Plans and designs	7,066 50	
Printing, advertising and stationery	996 60	
Quick-lime	2,466 08	
Salaries of superintendent of construction, secretary, etc	3,091 59	
Sand	3,489 79	
Sewers and drainage	414 20	
Surveys	25 00	
Brown sandstone	65,223 50	
Cutting and dressing stone	22,709 74	
Tools and implements	296 45	
Machinery	3,647 40	
Miscellaneous	16 53	
Water pipe and fixtures	1,103 18	
Brick	5,029 47	
Iron beams	2,299 96	
Expenses laying corner-stone	855 15	
	<hr/>	\$192,471 26
Amount expended to January 1, 1872		99,375 04
		<hr/>
		<u>\$291,846 30</u>

Appropriations made by Legislature :

In 1870	\$50,000 00
In 1871	150,000 00
In 1872	150,000 00
	<hr/>
	\$850,000 00
Total amount expended	291,846 30
	<hr/>
Balance unexpended	<u>\$58,153 70</u>

The ceremony of laying the corner-stone of this institution was performed on the 18th day of September last, in the presence of the Governor of the State (who delivered an appropriate address), the board of managers and a number of invited guests.

Few institutions have ever been started under such favorable circumstances, and the people will watch with pride and solicitude its development into an active dispenser of the benefits it was especially founded to distribute.

A condensed general description of the design of the Asylum will be found in the first annual report of the managers, made to the Legislature January, 1872.

STATE HOMŒOPATHIC ASYLUM FOR THE INSANE, MIDDLETOWN.

The second annual report of this institution shows that much progress continues to be made in the erection of the buildings. The sanitary provisions required by the class of inmates for which it is intended have been carefully considered and provided, and, when completed in all its appointments, this hospital will compare favorably with any in the State. It is proposed to carry the work forward during the coming year as far as the measure of appropriations asked for will allow, so that by January, 1874, the institution may be formally opened for the reception of patients. The trustees speak with confidence of the new enterprise which they have undertaken, saying that "if their system has been untried in an institution founded by public authority, it has not been without pre-eminent success in those ushered into life under private auspices," and they accordingly ask for public interest and sympathy in the scheme they are endeavoring to carry out.

NEW YORK INSTITUTION FOR THE BLIND.

This institution is another of those active charities whose successful management has suffered no abatement. It has ministered yearly to all that it was capable of accommodating, and thus been instrumental in rendering the blind a self-supporting class. The increase in mental development, produced by such teachings as are given here, has called for an increase

in the number of books specially printed for the blind, and their cost, still being high, prevents their purchase except in a very limited way. It is but just that some consideration should be paid to this necessity in the annual appropriations for the institution, and a larger number of standard works be thus permitted to find their way to the blind. The mechanical department, as well as the mental, is doing a good work for the pupils, and the Board commend both to the considerate attention and liberality of the Legislature.

STATE INSTITUTION FOR THE BLIND, BATAVIA.

This institution, now in its fifth year, is situated on a commanding site of ground near the village of Batavia. The buildings, which are of brick, particularly commend themselves for the very thorough manner in which they are constructed. In all the essentials of ventilation, heating, water supply and drainage, they leave nothing to be desired, an intelligent provision having provided for all possible contingencies in these particulars.

The class of inmates which it accommodates includes both adults as well as children. The number now reaches 140, comprising both sexes. The instruction represents all the branches usually taught the blind, including music, both instrumental as well as vocal. The superintendent, Dr. A. D. Lord, together with his wife, devote much time daily to teaching, being aided by a corps of competent teachers. Nothing appears to be omitted which can convert the blind into a self-supporting class and secure to them the means of future independence. The class in music are particularly noteworthy for their accomplishments, and will compare favorably with any similar number of students not blind. And the principle of keeping time has been systematized to such a wonderful extent, that the best readers of music are compelled to admit that sight could add nothing to the proficiency acquired by these blind performers.

In the workshop the pupils are also taught such use of tools as enable them to master some trade. In this way many become proficient in various arts, and show great aptitude in acquiring them despite their infirmity. The institution has attached to it a farm producing all necessary vegetables for home consumption, and the management of every department, whether inside or out, is satisfactory, as may be judged from the continuous good health of the inmates, their progress in studies, and the steady increase in the number of its pupils. For information respecting the financial condition of the institution, reference may be made to the Secretary's report and the statistical tables appended thereto.

NEW YORK INSTITUTION FOR THE DEAF AND DUMB.

This institution for the deaf and dumb having been so fully described in our last report, particularly with reference to the new system of *visible speech*, recently introduced, does not require any extended notice at this time. Its successful career for so many years bears indubitable evidence to the efficiency of its board of managers, as also to the rare accomplishments of its corps of teachers. The labors of the late Dr. Peet constitute a most interesting chapter in the history of deaf-mute education, and his own life was a monument of honorable devotion to the class of unfortunate beings for whose elevation he toiled. It is fortunate for the institution that the mantle of so distinguished a teacher fell upon a son every way worthy to wear it, and under whose guidance further advances continue to be made in the intellectual and mechanical training of deaf-mutes.

NEW YORK ASYLUM FOR IDIOTS AT SYRACUSE.

This institution, now in its twenty-second year, continues to work out, with most gratifying results, the objects of its foundation. Idiocy not being, like insanity, a disease, but a condi-

tion of arrested mental development, due unquestionably to physical causes, presents many phases of possibility which it is the purpose of education to *dis-cover* and to develop. This, in a word, is the great work which an institution of this kind undertakes to perform.

Our ideas of idiocy, as of other physical conditions reflecting themselves disadvantageously upon the mind, have sensibly enlarged under the general progress of scientific discovery, so that a human being, formerly considered as born with inflexible mental limitations, is now shown to be capable of so much development that the old conventional boundaries of idiocy can be stretched very far into those of mere imbecility. This is a great step forward in the knowledge of mental philosophy, and a supreme gratification to all reflective minds to be able to know, experimentally, that no human being exists in whom the germs of intellect are not in some degree present, and, although buried by adventitious circumstances beneath the rubbish of physical disorder, may yet generally be made to respond to proper stimuli when skillfully employed. Of course education creates nothing; it simply unfolds and draws out, an office sufficiently high to have merited all the commendation universally bestowed upon it in every age.

If it be true, then, that a perfect and wholly unteachable idiot is an exception, even in his own class of minds, it follows that, until reasonable efforts have been made to develop them, we can never predict what the real possibilities of any such being are. And inasmuch as it is the duty of the State to educate all its citizens, the rule applies with equal force to the idiot as to the intelligent child.

But in dealing with such minds experience from personal contact is superior to any formulæ which can be invented. And while some general curriculum may be adopted which shall define the limits of instruction given in any school, each particular case will call for a special modification of the rule,

in obedience to the necessities of its own modal conditions. Herein lies the great office and conservation of the teacher's art; an art vastly more variable and incommunicable than fall to him who teaches intelligent and *self*-stimulating minds, because at each step new obstacles must be encountered and overcome by new agencies, each one of which is purely tentative in that case, and, even if once successful, may never be so again. Therefore is it that the teaching of idiots is one of the most trying and exhausting of tasks, since, besides mere mechanical patience, it requires the teacher to be constantly projecting his mind into that of the pupil, without receiving adequate responses after repeated efforts, and often none whatever.

The long experience of Dr. Wilbur as a teacher of idiots, coupled to that inborn faculty of creating mental sympathy, which may, for want of any better name, be called personal magnetism, has enabled him to unfold some very intricate problems in the law of mental genesis, and to secure some very happy results in cases deemed most unpromising. Before asking how high an idiot can be raised in the scale of intellectuality, it would be well to consider how slender is the visible foundation upon which the teacher has to build his instruction, for in the idiot it is a question more of pouring in (instruction) than of drawing out (education); and do what we may, a certain proportion of these beings can never rise above *imitators* of conduct, and, therefore, cannot become *generators* of it for themselves. This is the limit for them of all acts not purely self-regarding.

Touching upon this point of differential degradation between intelligent and idiotic childhood, Dr. Wilbur says, with great force of expression :*

“It is very easy to conceive of a mental deficiency that differs but in a slight degree from the manifestations of intelligence in child-

* Fifteenth Annual Report of the New York Asylum for Idiots. March 9, 1886: pp. 18 to 26.

hood ordinarily; but to one not familiar with the subject it is, on the contrary, most difficult to realize how little intelligence exists in some human forms, and how great the pains required to awaken those germs of intellect into life. For when we reach a certain stage in the descending scale of idiocy, all the mental phenomena seem to be in direct contrast with those seen in childhood generally. Even the physiological functions are at fault; and when we look at the being imprisoned and hampered, not clothed and served by these parts and members, the case is found to be still worse. Inert and active, torpid and sensitive, dormant and vigilant, and the whole class of antithetical expressions of a similar character scarcely suffice to express the difference between the indwelling spirit that blindly feeds upon itself, and shrinks as it feeds, and another—the very type of normal childhood—argus-eyed and hungry, that spontaneously applies itself to related objects of every kind, and in all directions, with absorbing and digesting power.”

And as to the teaching itself, he further says :

“ The starting point will be low down ; the steps short ; the progress slow ; one thing at a time ; the subject of the lesson within the range of sensation ; defined, illustrated and fixed in the memory by contrast and resemblance, changing with the circumstances and moods of the hour, the goal within easy reach, and the motive for the learner simple, suitable and immediate.”

Of the low quality of material upon which this institution has labored, but an inadequate idea can be formed. In the report from which the above extracts are made, Dr. Wilbur says, “ the average age of the present number of pupils, on entering, was ten years and a half,”* and of these thirty-three had never spoken a word, only three of whom were deaf in the least. Forty were reported as speaking only a few words, and these indistinctly. Thirty-four were said to speak. The remaining thirty had the power of speech in varying degrees between the last two classes. Of the whole number but sixteen could count ten, and of these only three or four had any idea of adding even the simplest numbers. Six had received instruction and could read a little. As many more knew a

* Ibid, p. 29.

part of their letters, though efforts had been made in perhaps a fourth of the cases to teach them to read. It should have been mentioned of those who could speak, but few began to speak at the usual age. Nineteen knew very little more of language than their own names. Sixty-two could not dress or undress themselves, while sixteen could do so partially. Sixty-two were reported as not cleanly in their habits.

Such is the dismal picture of unpromising humanity which the labors of the superintendent and teachers in this asylum are endeavoring to reclaim. And certainly, all that patience, prevision and experience can accomplish, in fanning the few embers of intellect into a more manifest self-assertion, is daily done, and that too with an eye of vigilance which never slumbers, and an assiduity that never wearies. The general health of the inmates abundantly testifies to the truth of these facts; and in view of the physical deterioration which almost always accompanies idiocy, it is remarkable how few deaths have occurred in the institution since its foundation. The reason of this is sufficiently explained in the following paragraph extracted from the superintendent's report for last year; page 11 :

“ Now, associate with the peculiar conditions and states, physical and mental, that have been roughly portrayed, numerous forms of impaired vitality and positive chronic disease, and you then have the problem as it presents itself to those who would ameliorate the condition of idiocy.

“ One step towards the solution of this problem, in the judgment of the Legislature of New York some twenty years ago, was to found an institution that should be both a sanitarium and a school; for, in the case of many pupils, as a preliminary, a degree of physical health and vigor was first to be established, and in others to be confirmed, by an appropriate regimen and the use of suitable medicines. The means and appliances were meant to be as numerous and varied as the educational necessities of the pupils. A definite system and series of exercises was provided, designed to reach down to the lowest cases, and terminating, in the opposite direction, only with the customary elementary studies of childhood.”

Looking at the history of the institution, it appears that the entire State appropriations for building purposes to the asylum, up to January 1, 1872, have been \$86,000. To this must now be added the further appropriation of \$30,000, made by the last Legislature, for the purpose of erecting an additional wing to the asylum, and which has been done during the past summer; the whole construction-cost amounting to \$116,000, for the accommodation of 220 pupils, or at the rate of \$527 for each inmate.

The actual expenditures of the institution for the year 1871, deducting clothing bills, amounted to \$30,216.75, which, being divided by 145, the number of the pupils, makes an average annual cost of \$208.39 for each pupil.

Keeping in view the fact that this institution is in all senses a sanitarium, as well as a school, and that the physical condition of its inmates calls for a more varied diet and more auxiliary articles of food than any other State institutions, with the exception of lunatic asylums, it will be seen that this asylum constitutes an eminently practical charity, which both indirectly, as well as directly, is working out the problem of rendering idiots self-supporting, by proving that, as a class, they are worthy at least of an effort to reclaim them, and thus showing how, while all the idiots in the State cannot be accommodated within its walls, yet its methods may be copied and initiated here and there, so as to leave no person, however limited in his capacity, without some accessible means for receiving such instruction as he is capable of comprehending.

STATE INEBRIATE ASYLUM AT BINGHAMTON.

This institution, among the finest in its architectural appointments of any in our country, and situated in a locality of unsurpassed magnificence, is an experiment made by private enterprise to reform confirmed inebriates, by treating their condition as a special disease. Availing itself of public aid

soon after its establishment, it became the recipient of a portion of the excise tax, which was continued for successive years until 1869. Since then, its current expenses have been met by receipts from paying patients and the products of the farm. The amount raised from these sources has been adequate for this purpose, and at the same time enabled the managers to receive and provide for a limited number of charity patients.

Under the original form of its organization it was not subject to the visitation of the Board, but its managers having placed it in the category of a public charity, it comes within the provisions of our duties to investigate its eleemosynary character, and to suggest any changes in its administration which may tend to render it more useful to the class of inmates for whom it was designed.

Without desiring to express any opinion upon the question which divides the public as to the propriety of maintaining State institutions for the treatment of inebriates, the Board feel called on to say that, in their judgment, much good has resulted from the efforts thus made, and that, by placing this asylum upon a basis similar to that of other State institutions, still greater results might be expected from it.

It is, therefore, respectfully recommended that its sphere of operations be extended, so as to include public patients. With this end in view, it is only necessary to confer authority upon courts of record to commit this class of persons to the custody of the institution, upon the application of superintendents of the poor, or such other county officers as may be deemed proper, the expenses, not exceeding actual cost of maintenance, being chargeable to the county from which the commitment was made. At the same time the managers should be permitted, as heretofore, to receive private patients, under such general rules and regulations as may seem most expedient.

In order the more thoroughly to carry out the purposes of the

institution, the Board are of opinion that the managers should be authorized to restrain, when necessary, all patients within their care, whether committed or coming voluntarily ; and as to the former, a system of labor should be applied to them according to their physical capacity. By such means the farm could be cultivated, mechanical pursuits and domestic work carried on, thereby adding much to its reformatory influences.

The income from these industries, and the receipts from public and private patients, would probably be sufficient for the current expenses of the institution, relieving the State from any charge in the matter other than the maintenance of the buildings and supervision, and at the same time place it in full accord with the views and interests of the county authorities, by enabling them to relieve their several communities from the presence of violent and dangerous inebriates, for whose custody and care no adequate provision at present exists.

WESTERN HOUSE OF REFUGE AT ROCHESTER.

This institution, now in its twenty-fourth year, has reached a degree of completeness in its appointments and of success in its special reformatory ministrations which makes it in every respect a model of its kind. Whether we consider the sanitary, the moral or the educational arrangements for the improvement of its inmates, it fulfills in all the most necessary demands that can be made upon an institution of so responsible a character. In viewing here the instrumentalities thus secured for the reformation of juvenile delinquents, and the good fruits which bear testimony to their efficacy, there is a feeling of deep regret experienced that these benefits should, by legislative enactment, be solely dispensable to *boys*, no provision for a female department having ever been made.

In our report last year we called the attention of the Legislature to the necessity of organizing a female reformatory in

the western part of the State. The expediency of such a measure had long been felt, and public meetings had been held to express the sentiments of communities upon the subject. The matter, however, not having reached any conclusion last winter, we deem it our duty to renew the suggestions heretofore expressed upon it, as bearing directly upon public morals. In this step we are further justified by the conduct of the board of managers who, in their last annual report, thus speak (pp. 21, 22):

“The need of a reformatory for girls has never been more apparent here than now. Our streets at night are simply a promenade in which girls, varying in age from ten to sixteen years, most of whom have either already entered upon a life of crime, or are in a course of preparation for it, are seeking companions in vice, and are doing much to corrupt the morals of the youth with whom they come in contact. There being no institution accessible to offenders of this character in western New York, local magistrates are perfectly powerless to relieve society of this class of evil-doers, nor can any steps be taken for their reformation. Many of them are presented to the courts for small offenses, such as petit larceny, vagrancy, street walking, and offenses of this nature, for which there is no adequate punishment or mode of restraint, their ages rendering confinement in the penitentiary a matter of impossibility. Accordingly these girls, who, as a result of youth and inexperience, are leading such lives, when the mind is so impressionable, and before the heart has become calloused by participation in crime, when a little care, kindness and protection might easily rescue them from a life of infamy, are allowed to cling to their evil courses. The hand of hope, rich with the promise of reformation and future usefulness, is never once held forth to them. No hand arrests their progress until the strong arm of justice flings open to them the criminal cell. Crime has become a second nature to them, years have familiarized them with the process in its various gradations, and the disgrace of open exposure has broken down the last barrier of self-respect, leaving them utterly reckless and abandoned.

“As in the physical nature to successfully combat disease we must not wait until the constitution be undermined, so in the moral nature we must not quietly look on until the whole moral being is

infected, until conscience has suspended its functions and the living fountains of the will have run dry.

"The social evil is attracting considerable attention throughout the western part of New York. Houses of prostitution are continually being invaded by the officers of justice, the inmates and visitors arrested, heavy fines imposed, and, in some cases, imprisonment is resorted to. It would seem that the community is entitled to assistance in the work, at least so far as is possible, by a barricade of the avenues from which these houses are supplied with inmates. Magistrates feel the necessity of a reformatory of this kind, and say that, after the arrest of these girls, knowing them to be a social pest, they are obliged to discharge them for want of some proper place to which they may be legally committed.

"To this matter, which we have hurriedly and imperfectly placed before you, we would most respectfully invite your earnest attention."

Within the past year this institution has made some important improvements in its internal arrangements, which merit special mention. In the dining halls, the long narrow tables running across the rooms, with stools for seats, facing one way like prison mess-rooms, have been removed, and are now replaced by tables capable of seating from twelve to fourteen boys each. Comfortable chairs have also taken the place of ungainly stools. The moral effect of these improved and civilizing surroundings upon the susceptible minds of boys cannot be over-estimated. Such things tend to elevate one's feelings of self-respect, and to appeal to the sentiments of decency and good order which always lurk in even the lowest minds. Man is never entirely divested of his moral sensibilities, however much they may have been blunted, and much more is this the case with childhood. Certainly, if such trivial things may prove pivots upon which to turn a sentiment from a latent germ into an active motive to good behavior, the difference in expense should not be considered as any argument against it.

Another great improvement consists in the introduction of steam as a means of heating, combined with ventilation. All the work of laying pipes, with their manifold details, was suc-

cessfully accomplished, under the direction of the superintendent and an engineer, by boys belonging to the institution. In this way much expense was saved, while the work was at the same time well done.

The *Badge System*, recently introduced as a reward for good behavior, is working with excellent effect. Boys find it entirely within their own power to earn a badge, and thus display their recorded standing before their fellows. By continuous climbing through these various degrees of improvement, they become entitled to a discharge, whenever the discharging committee can provide suitable homes for them. We deem this system a great aid to the development of order, industry and patient well doing in boys, and heartily commend it to the attention of the superintendents of all reformatories.

The general good health of the inmates during the past year is abundantly proved by the physician's report, showing that only three deaths had occurred in a population of over 500 boys. This is quite remarkable, and shows how much the sources of disease in communities are under the control of human agencies. But apart from physical instrumentalities, the moral surroundings of the inmates have much to do with preventing disease. Sympathy exhibited by officers for their wards, civility and cheerfulness pervading every countenance, and a constant desire to lift these social waifs above the degrading tendencies which they have inherited, these are the subtle agencies which leaven character and serve to teach both men as well as boys, the way to respectability and independence.

On this point the superintendent expresses the true mission of such an institution when he says :

“For these boys, we are trying to do all that any reformatory institution can do, let its basis be ever so broad. We are attending to their personal wants, providing them with comfortable clothing and lodging, giving them food of unquestionable quality in abundance, and offering superior educational advantages. By making

every boy responsible for any untidiness of person or habit, we are endeavoring to inculcate habits of cleanliness. Promptness cannot but become a part of that boy's nature who has been subject to our discipline. Obedience is one of the first lessons taught to boys coming among us. Civility, we try to inculcate by precept and example. Cheerfulness is consequent upon a system which tries judiciously to cast the balance between labor and recreation. Industry is rewarded, while the idler is disgraced. Boys wanting in self-respect are carefully built up; a worthy pride is instilled into them; the germ expands and rarely fails to put forth the buds of promise. In order to cultivate self-reliance, each boy is put, as far as possible, upon his manliness; and his status in the house depends upon the result. He is taught to do for himself, and understands that his future depends upon his improvement of the present opportunity. Instructing them in useful trades, by which they maintain existence through the future years, is the only true method of making self-reliant men of them, and that, as far as practicable, ever has and shall be our aim." (*Report for 1872, p. 48.*)

From a recent personal inspection of this institution we can testify to the truth of the above statement, and conversations with the boys satisfied us that they both see and appreciate the efforts which are made to return them as good members into society.

GENERAL REMARKS RELATING TO PUBLIC INSTITUTIONS.

There are certain conditions connected with all public institutions devoted to custodial purposes, to which the Board deem it their duty to advert. These conditions constitute necessities in fact, and means capable of promoting the end in view. They relate partly to health, partly to morals, partly to comforts outside of merely utilitarian provisions, and may be said in a word to belong to the esthetic wants of our nature.

From a careful survey of all public institutions in the State, and the testimony of those who have been longest in charge of them, the Board are of opinion that mere size and capacity for numbers is not the proper end to be kept in view, in con-

structing buildings for charitable or penal institutions. There is a limit in numbers beyond which human beings cannot be aggregated without detriment to the efficient management of the establishment where they are placed, and necessarily to each other. This has been admitted frequently, both in relation to the insane as well as to those in penal confinement.

The Board desire also to call attention to the adornment of grounds within *reformatories*, and wherever children are kept in *quasi*-penal confinement. It is always done to a greater or less extent in insane asylums from the acknowledged good effects produced upon their inmates. But how much more beneficially would it not act upon the plastic minds of childhood, teaching them taste as a duty and insensibly refining their natures. It would be time well invested to take a few hours weekly from the workshops and devote them to gardening. Besides which, gardening may be made a profession, and thus the child may be educated by the same means through which he is elevated in taste.

The Board further recommend, as an incentive to good deportment, that in such institutions all children be encouraged to adorn their rooms with such little articles as fancy may prompt and propriety does not forbid. They tend to impart a home like feeling to the place, and to teach its inmates that home, inside or out of a public institution, is pretty much what a man chooses to make it. If he makes it agreeable, he makes it sacred, and if he makes it the home of virtue he makes himself respected accordingly by the world. It is also recommended that occasional lectures on natural philosophy, illustrated by experiments, be introduced wherever practicable.

PART II.—LOCAL CHARITIES.

This class of charities properly includes :

1. Homes, asylums and refuges, and
2. Work-houses or reformatories.

In relation to these institutions which are fit subjects for legislation, because they do not yet subserve all the purposes of which they are capable, the Board desire to say that their opinion of what is needed in the form of special enactments to bring such institutions up to a more nearly self-supporting standard remains the same as stated by them in their last report, and they feel it accordingly unnecessary to do more than repeat those views, as follows :

“All healthy paupers or criminals, in whatever institution placed, are a portion of the productive capital of the State, and should make return for the food, lodging and clothing received. In general it may be said that this rule is already everywhere enforced. But as a fact, we believe that pauper labor still remains very far behind what it should be in productiveness.

“The Board have, from their very first inspection of county poor-houses, been persuaded of the expediency of making them exclusively retreats or infirmaries for sick, aged or helpless indigents. This is their only proper mission. To congregate masses of able-bodied paupers in such institutions is not only an error economically, but a fruitful source of demoralization to their inmates. Idleness is the parent of vice everywhere, particularly among the ignorant, and a few vicious persons in such a community are sufficient to contaminate the whole. The evil influences of such a system are chiefly seen upon children, who soon acquire the bad habits of their elders, and sally forth from the various poor-houses ready to begin a career of vice and degradation. These facts are too obvious to need any comments; they explain themselves in their very statement, and show us where the children of paupers [are prepared to become chronic vagrants, or candidates for the penitentiary.

“Until now, we believe, no effort has ever been made to change the essential character of poor-houses, because of the fact that classification of their inmates was generally impossible. In many of them, as the Secretary's report shows, separation of the sexes is hardly yet secured. In the presence of such facts as must accompany any system of promiscuous herding of mankind, morality cannot long remain unattacked, and the very charity which seeks to provide for the wants of the poor, in giving them shelter and food, becomes the readiest instrument for their demoralization. For all this there is a remedy,

simple enough to reach every case, and wide enough to confer a double benefit upon the community, since it both provides a support for the pauper and a protection against his moral degradation. That remedy consists in the establishment of industrial alms-houses, homes and refuges for the reception of able-bodied paupers, and the limitation of county poor-houses exclusively to the sick, aged or helpless.

"In its report for 1868 the Board call attention to this fact, and the schedule thereto appended showed that, in return for the support of *four thousand five hundred and nineteen paupers* in the various county poor-houses of this State (exclusive of New York and Kings counties), only \$32,342.88 were earned. This would give an average for each person of less than eight dollars a year, while the individual cost of support of such pauper could not be less than two dollars a week, or \$100 per annum. Making all allowances for imperfect records, there is still good ground for believing that the majority of paupers in this State do not earn *one-fifth* of the cost of their support, and, admitting even that among these are a number of sick and feeble, amounting to one-half, this would not bring the average earnings of each healthy pauper, according to the above schedule, up to *one-third* of the cost of his maintenance.

"In the presence of these facts, it is the duty of the State to provide some means for increasing the utility of this portion of its population, and thus bringing it nearer to a condition of self-support than heretofore. This result we do not think can be achieved in the county poor-houses. The superintendents of the poor everywhere, probably, endeavor to do the best they can to render pauper labor productive, and if they have failed, as our schedule for 1868 shows, to obtain such results as would relieve their several counties from the burden of an oppressive charity, it must be due to causes of a more or less local character over which they can exercise no control.

"We are so well persuaded of this that we do not hesitate to suggest at once the creation of industrial alms-houses, where healthy paupers from a number of contiguous counties could be brought together and made to labor systematically. It is a system which everywhere imparts strength and productiveness to labor, and by introducing some of the simpler kinds of artisanship into these work-houses, the labor of their inmates could be turned into channels which, while rendering the pauper self-supporting there, would also teach him how to support himself in the world at large. But the most important point, perhaps, to be considered in relation to industrial

alms-houses is that of determining the period of detention of their inmates. Remembering that the objects contemplated in the removal of persons thither are two-fold, viz.: First to disburden the county poor-houses, and second to teach the parties themselves some manual art by which they may become self-supporting, it would seem expedient that the period of detention should be as long as possible.

“In order, however, to remove everything like an appearance of punishment from those who are legitimate paupers, it would be advisable to make the period of their discharge depend both upon good conduct and season of the year; as where a party is committed at the beginning of winter, and without reasonable prospects of finding occupation, until spring. Besides which it must be remembered that some time is required by all men to learn an art, and it is hardly worth the while to begin the instruction if the party must be discharged before he has attained sufficient proficiency in it to make it of permanent use to him.

“WORK-HOUSES OR REFORMATORIES.

“In connection with the proposed establishment of industrial alms-houses for legitimate paupers, arises as a natural corollary the question of district work-houses to be attached to them as reformatories. There are a number of minor offenses against society which might be more profitably expiated in such establishments than in ordinary penitentiaries. From vagrancy, in all its multitudinous forms, to larcenies and assaults of a minor grade, there are causes enough of commitment to jails to furnish a large number of able-bodied persons capable of laboring. It would only be necessary to remodel portions of our criminal statutes to enable commitments to be made directly to these work-houses, of all petty offenders liable to be sentenced to a county jail for a period of more than ten days. It seems but just that the present system of herding prisoners in county jails, and leaving them afterward to sit out their sentences in idleness, should give way to one which will render such persons in a degree self-supporting, and thus diminish the burdens of taxation of the communities whose laws they have violated.

“It will also devolve upon the State to provide such means of employment as will render the labor of the inmates of these reformatories not only equal to the cost of their support, but even profitable to the institution in which they are placed. We accordingly suggest that the direction and supervision of these institutions, in both their

industrial, pauper and reformatory departments, be assigned to this Board, and that they be allowed to make all such rules for their government as in their judgment may seem proper.

“We are persuaded, therefore, that the interests both of society and the person committed to a work-house are best subserved by rendering the period of detention not less than three months.

“HOUSES OF REFUGE FOR GIRLS.

“Ample provision seems everywhere to have been made for the safe-keeping and reformation of *male* juvenile delinquents. In the House of Refuge on Randall's Island, there are accommodations for over 700, and the Western House of Refuge will accommodate some 500. It is evident, therefore, that the public mind is fully aware of the urgent necessity of institutions of this kind, where youth may be reclaimed in the earliest stages of its delinquency, rehabilitated with moral character, and confirmed in the determination to lead a future life of industry, thrift and self-respect. There can be no exaggeration of the value of such reformatories. When the single fact that a boy is there taught the art of self-support and the habit of self-reliance is taken into account, apart even from the higher moral elements which are also inculcated, it will be seen that few of the many so-called Christian firesides do as much for their children as these homes of reformation. Surrounded by all the sweet charities of love, justice and mercy, with the material advantages superadded of instruction in some profitable trade, and the development of an honest ambition to excel in it, we can point to no better illustration of the humane solicitude of the State, in its parental relations to its citizens, than is here afforded. It is true, perhaps, that this charity is not wholly spontaneous, and that its objects must first bring themselves within the penal observation of the State before these reformatory measures can be employed in their behalf. But even as it is the sick and not the well who need the physician's ministrations, so in respect to these juvenile delinquents; it is their moral sickness which calls for the intervention of the State as a moral physician.

“The offenses which bring those young culprits into the hands of a reforming institution are more or less specially designated by statute. They are reckoned as minor, in the general scale of crimes against the moral order of society, and, so far as boys are concerned, do not tend to permanent degradation upon them. There are frequently committed without destroying

the springs of self-regeneration. They reduce and demoralize, but they leave no ineradicable sting behind them. In this respect the male sex has a decided advantage over the female. It must be remembered that the loss of virtue, like the loss of a member, is an irreparable injury. Reform may be as complete as possible, and the subsequent life void of offense, but this does not act retrospectively to restore what has been lost; it only guarantees a more prudent and circumspect behavior in the future. The great point of all, in the problem of moral guardianship, is to prevent the first wrong step in the child. In all our populous towns, as well as in our large cities, sources of contamination exist, and these sources being ineradicable, the only remaining course to pursue is that of withdrawing young girls altogether from the possibility of temptation.

“The public mind, as elsewhere said, is fully impressed with the necessity that exists for more reformatories or houses of refuge. In the western part of our State, in particular, several important meetings have been held, and reports made of the extreme urgency of this necessity. Such a necessity, like the outbreak of an epidemic, should be met at once, and in all sections where it exists. It would not be difficult to show, therefore, that one, certainly, if not two houses of refuge for girls are immediately needed in the western parts of the State. Exactly where, we shall not pretend to indicate, since that is a question to be decided under the light of population, accessibility and economy of construction and support; nor as to the particular ages within which alone girls should be permitted to enter such institutions. All these are details subordinate to the great fact that an urgent necessity exists, and a solemn responsibility rests upon the State to meet it at the earliest possible moment. We accordingly recommend that a board of commissioners be appointed to select a site for the construction of such an institution during the coming year.”

PRIVATE LUNATIC ASYLUMS.

In some preceding reports, and more particularly in its last, the Board has called attention to the peculiar condition of the insane in private asylums, and the more this question is examined the more its importance justifies a fresh discussion of its merits. In the light also of recent events, the time has evidently arrived when public opinion will demand from the

State additional measures of protection for that class of insane citizens which it has heretofore overlooked. This fact has long been expected by those who, observing the course of events in other countries, foresaw the necessity in our own of throwing more positive safeguards around the insane than had yet been done.

There can be, and is no good reason why the State should make any distinction between its insane citizens in public and in private asylums. They are in either case the wards of the State, and as such entitled to its constant supervision. In the one case it appoints boards of managers to superintend the administration of its public hospitals or asylums, and compels them to render an annual account at least of their trust. Giving to such institutions the lawful authority to hold in custody its insane citizens, it still extends over these unfortunates a parental oversight, and, as if desirous to multiply all the sources of protection for them, it has further given to this Board the power, and imposed the duty of visiting them and inquiring into their condition. Such are the supervisory agencies thrown around the insane in public asylums.

But in the case of private asylums, while the State allows any citizen to be confined in such places by legal process, it virtually abandons him the moment he crosses the threshold. It conducts him in custody to the door and there leaves him in the keeping of a self-constituted guardian. What means has it taken to ascertain the character or qualifications of this legal custodian? None. In public asylums the superintendent is selected by, and is ever responsible to, his own board of managers, and they, in turn, are supervised by this Board, each making its separate report to the Legislature.

But no similar safeguards are thrown around the insane in private asylums, therefore is it the more incumbent upon the State to extend, through some competent officer, its protecting arm over them. Nor is it less necessary for the protection of

the keepers of these institutions against unjust suspicion and censure.

PRIVATE LUNATIC ASYLUMS.

[Visitation by request of their Superintendents.]

Although, as before said, this Board have no power, and therefore no right given them by statute to inspect private lunatic asylums, the superintendents of some of these institutions have very courteously solicited such visitation, and freely opened every part of their establishments to our inspection. Dr. George Cook, of Brigham Hall, Canandaigua, was the first to extend this invitation to our Board, in accordance with which request Messrs. Anderson and Dwight visited his asylum in 1870. No account of it, however, appeared in the report for that year, as the circumstances of that visit did not seem to justify official notice. Dr. Cook having repeated the invitation this year, with a request to have such visit included in our report, as an official act, the Associate Secretary was accordingly directed to inspect the institution, which he did on the 5th of December.

Within the past few months, Drs. Brown, of Bloomingdale, N. Y., and Barstow, of Sanford Hall, Flushing, have also extended similar invitations to the Board, with similar requests to be officially reported. We do not think that, after this, there can be any doubt of the willingness manifested by all these gentlemen to throw open their doors to the full inspection of the Board, and of the good effect to be produced upon the public mind by having this fact generally known. In the light of recent events calling for a special commission to inspect the Bloomingdale Asylum, the Board feel that they can, with more reason than ever, ask the Legislature to grant to this Board the power heretofore asked for to visit and inspect all places where the insane are kept for profit. The superintendents and managers of these institutions need protection, as before said, against suspicion and detraction, just as much as the public

need to be protected against their improper management. And in this connection it may not be improper to quote from the last annual report of one of the oldest of these superintendents, Dr. Cook, his views upon the subject, knowing, as we do, that they substantially represent those of the superintendents of Bloomingdale and Sanford Hall.

“We have not been visited by any member of the Board of State Charities during the past year. I am still of the opinion that all the insane in our State, whether in private or public care, should be placed under the supervision of this Board. I also think that the best interests of the insane, and of those in charge of hospitals and retreats for their reception and care, will be promoted by the enactment of a law authorizing the commitment and detention of patients, which shall apply to all the insane, whether supported at public or private expense, and uniformly applicable to all places where they are received and treated.

“Such a law should be applicable to the whole State, and should throw no needless obstacle and expense in the way of obtaining prompt admission and treatment in recent or urgent cases, while the rights of all should be properly guarded and secured. The sworn certificate of two physicians, based on careful examination, with a commitment by a judicial officer who shall be readily accessible in cases of emergency, would secure these ends; and I hope to see this result reached by appropriate legislation at the approaching session of the Legislature.” (Annual Report for 1871.)

BRIGHAM HALL, CANANDAIGUA.

This institution, in successful operation since 1855, is beautifully located on a site of ground overlooking the village of Canandaigua and the lake of that name. Capable of receiving between seventy and eighty patients, it is quite as large as desirable for a private asylum, and yet not large enough to extinguish the homelike character which, as far as practicable, should be preserved in such establishments. The buildings are of the cottage pattern, giving extension rather than altitude. In this respect they are advantageous both to the patients who must dwell in them and the officers and attendants who must

discharge duties in them involving much locomotion. Nor is it out of place either to call attention to the good taste exhibited in coloration of buildings and the laying out of grounds. The number of patients treated since its opening is 816; of these 252 have been discharged recovered, 172 improved, and 175 unimproved. The whole number discharged and who have died is 746, leaving seventy under care at the beginning of the present year.

STATISTICS FOR 1872.

Number of patients remaining December 31st, 1871.....	70
Number of patients admitted during the year	54
Whole number treated	124
Discharged	56
Remaining, December 31st, 1872.....	68

Form of Disease Admitted.

Acute.....	28
Chronic	21
Inebriates	5
Total	54

Results of the Year.

Recovered	19
Improved.....	21
Unimproved	11
Inebriates	3
Died	2
Total	56

Cause of Death.

Old age and chronic insanity.....	1
Phthisis	1
Total	2

SANFORD HALL, FLUSHING.

This institution is one of the oldest private asylums in the State. It was originally established by Dr. James Macdonald, formerly of Bloomingdale Asylum, and occupies the spacious mansion of the late Chancellor Sanford. The building is a large house with marble front, with two rear wings for disturbed wards, and affords conveniences for the care of forty patients. Its size, its site and its appointments, combining retirement with easy access from the city, have long made it a desirable retreat for a class of patients whose home antecedents require and whose means enable them to secure the same surroundings as those among which they have lived. The small number which it accommodates, and the more circumscribed circle of associations which one large and compact building produces, enables its superintendent to maintain as nearly family relations between himself and his patients as the nature of their maladies will permit. All that can, sit at table together with him, thus maintaining the similitude of one family board. The grounds are extensive and well laid out for the purposes of such an institution, and proper provision is made for every contingency of treatment, health or personal custody. The interior of the buildings presents the aspect of a private residence, combining quiet and seclusion with comfort and good taste. The present superintendent, Dr. Josiah W. Barstow, has been in charge some eighteen years. The institution was never incorporated, but has always been a private retreat for the insane who desire the same kind of surroundings and attendance which they have in their own homes.

CONCLUSION.

From the foregoing review of our public charities, it will be seen that there is cause for gratification at the general course of their management. Considering also the large number of

these institutions, there is additional proof for this assertion in the fact that, within the past year, but two cases requiring special inquiry have come under observation, in both of which the Board promptly undertook an investigation, with the results already referred to. Such cases, however, show the necessity of some power in the State to supervise the action of local boards of managers in the application of legislative benefactions.

The Board repeat some of their suggestions, which have not yet been acted upon. Supervision of the insane in private asylums is urgently demanded by public opinion; work-houses for able-bodied paupers, and a reformatory for girls in the western part of the State are also existing necessities. These classes of persons are not yet adequately cared for by the State, and the Board feels that its duty is not wholly discharged until it has recommended the enactment of laws capable of affording protection to the insane, and of further restraining the growth of pauperism and vice.

All of which is respectfully submitted.

JOHN V. L. PRUYN,
President.

JOHN ORDRONAU,
Associate Secretary.

Dated ALBANY, *January 11th*, 1873.

APPENDIX.

NEW YORK JUVENILE GUARDIAN SOCIETY, NEW YORK CITY.

REPORT OF THE BOARD OF STATE COMMISSIONERS OF PUBLIC CHARITIES
RELATING TO THE CONDITION AND MANAGEMENT OF THE NEW YORK
JUVENILE GUARDIAN SOCIETY OF THE CITY OF NEW YORK.

To the Honorable NELSON K. HOPKINS,
Comptroller, Albany, N. Y.:

The Board of State Commissioners of Public Charities having, on due application, made an investigation into the condition and management of the affairs of the New York Juvenile Guardian Society of the city of New York, respectfully submit the following report :

The society was originally organized in the year 1848, but was not incorporated until January 6th, 1866. At this date it was incorporated under the general law relating to charitable societies. Its object, as set forth in its charter and constitution, is to bring street children and deserted children under instruction, and to provide them, to a certain extent, with food and clothing. The plan contemplates, also, that a home should be provided for such of this class of children as may need it. But little, however, has ever been accomplished in this direction. The institution is managed by a board of seven directors. Its officers are a president, treasurer, secretary or superintendent. It employs a number of teachers, agents and subordinates. At present the main work of the society consists in the management of two schools. One of these is kept at No. 101 St. Mark's place, and the other at 209 Bowery. The latter has been in operation about six years. The number of scholars is much smaller in the summer than in the winter.

The average is about 140. The number of teachers employed is five during the entire year. The school in St. Mark's place was opened in 1868. The number here are considerably larger. They vary from three to four hundred, making an average number of about three hundred and fifty. The number of teachers employed here is from six to seven. The schools have none of the characteristics of an orphan asylum; all of the children come from homes, and no subsistence has been furnished until recently, and now only to a few. This is substantially the work of this society. The comments now to be made on its management are derived almost wholly from the evidence supplied by the members of its board and its financial and other officers. It was thought to be the most judicious course for the members of the Board of State Charities to come to a conclusion on the conduct of the association from an authentic and undisputed disclosure of its own affairs. We consequently obtained a transcript of the books of the association for the past year, showing its receipts and every item of expenditure, and at the same time examined the officers as to such items as seemed more particularly to require explanation. In connection with this specific information for the past year, we also made such general inquiries as to the former management of the institution as could be obtained without extending the investigation to an unreasonable length.

The evidence is very voluminous, and it is not at present, in our judgment, necessary to do more than place it on file in the office of the Secretary at Albany, where it will be subject to inspection of parties who may be interested in its examination. If the conclusions at which we have arrived shall be contested, it may become necessary to present the testimony in full to the public. As the main object of this report is to furnish information to the Comptroller, on which he may base such action as he may deem advisable as to the payment to the society of the appropriation made to its use by the last Legislature, this Board, desiring to bring the matter to that officer's attention at the earliest practicable moment, submits

its conclusions without attempting to elaborate them. It is a disagreeable duty which our convictions compel us to perform, to recommend that the Comptroller exercise such power as he may possess, to withhold the appropriations made to the use of the Juvenile Guardian Society. This recommendation is based on the following general grounds :

First. The statement of the society's affairs made in its published report, and on which the Legislature and individual donors must have been presumed to act in making the appropriations and contributions, exhibits a want of candor and ingenuousness, not to say absolute misrepresentation. It states among other things, in its report published in 1869, as a strong reason for an appropriation, that in former years it has taught and cared for seven thousand four hundred and sixty-eight (7,468) children, and that the number of such children in 1869 was two thousand and seventy-six (2,076). A candid representation of the society would have required the statement that a large number of these children were taught only once a week in a mission Sabbath school, and that the average attendance in the day schools did not exceed one-quarter of the number thus represented. The testimony exhibits an average attendance of about 500. This number is much larger than that found in any visit made by members of this Board or by the Secretary. Again, there are statements in the report which might lead the casual reader to suppose that the society had accomplished an important work in the past in founding schools, which were and are still productive of much good. The language of the report is as follows: "During the twenty years of its existence (since 1848) this society opened and sustained for longer or shorter periods twenty-four mission and day schools at the following localities. (Here follows a list of the localities.) Some of these schools were transferred to other institutions, some were the nuclei of new churches, some were discontinued, others suspended, and others are still in progress." The Board made careful inquiries of the superintendent, Rev. Mr. Robertson, as to the existence of these schools, when the following facts were dis-

closed: A considerable portion of them—about one-third—had been abandoned from twenty to twenty-four years, nearly another third for fourteen or fifteen years. Only two of them were continued in 1869. This Board feels constrained to say that the report of the society in this and other respects is calculated to mislead. It may be pertinently asked whether such statements accord with the high moral and Christian professions which are made in other portions of the document? This Board must insist, in all its investigations, upon the absolute necessity on the part of charitable institutions of fullness and openness of disclosure in their applications to the Legislature or the public for pecuniary aid, and it will particularly criticise all statements in reports and elsewhere which tend to exaggerate or misrepresent the amount or value of the work which the institution essays to accomplish.

Second. The institution under investigation appears to us to be unnecessary and the expenditure extravagant for the work accomplished. A large portion of its work can well be accomplished in the public schools. Nearly the whole of it could be performed there by slight supplementary aid to the poorer children. It appears, from the testimony of the superintendent, that no effort is made to induce the attendance of those children at the public schools who might readily go there. The examination of the schools by Commissioner Bishop and the Secretary showed that there was but little difference between these children and those usually attending the public schools. They are of the opinion that the mass of the scholars come from families where the parents are in such circumstances in life that they are able to provide for their children in the public schools. It should be stated that the buildings in which the schools are kept are badly arranged, imperfectly ventilated and lighted, poorly furnished, and with but few proper appliances for teaching. The testimony of Mr. Robertson, the superintendent, is substantially to the effect that the parents of about one-third of the number of children have sufficient means to send them to the public schools, and to give them respectable clothing. It may be added that there is no lack of

accommodation in the public schools for such children as may be sent there. This Board has a letter from the city superintendent of public schools, Mr. Kiddle, showing that in the public schools in the neighborhood of the schools under the control of the Juvenile Guardian Society, there is room for nearly two thousand pupils (1866), and that this number could be taught for a small additional expense for the salaries of teachers of the lower grades. Judge Lansing, in behalf of the Guardian Society, submitted to us an estimate, showing that in his judgment the expense of sustaining its schools is less than that of supporting the public schools. The estimate, however, leaves out of view the important fact that the public schools are already in existence, and have suitable buildings and accommodations, and that the only additional expense, as they are *at present constituted*, consists in a slight expenditure for additional teachers required for an increased number of scholars. Moreover, the Board of State Charities is of the opinion that the general plan of the New York Juvenile Guardian Society is faulty and vicious. Its tendency is to entice children away from the public schools, by holding out to them extraordinary inducements to come to the schools of the society. Attractive entertainments are supplied at Thanksgiving and Christmas, a strawberry festival is given in the spring, gifts are made of clothing and various articles that would be desired by the parents, such as baskets, kaleidoscopes, etc. So potent are these influences, that the numbers in the school in St. Mark's place swell in the month preceding Christmas from a little upwards of three hundred to more than four hundred. Besides, the gift of money, clothing and provisions is left entirely to the judgment of the superintendent. He is known to the poorer classes to have money at his command. They come to him whenever in want. What is this but a system of "out-door relief" for the poor, without checks or control or security for management? There are responsible agencies by which such work can be done, such as the City Commissioners of Public Charities. The inevitable tendency of the course pursued by the Guardian Society is to pauperize those who receive what may readily become indiscriminate benefactions.

The only, or at all events the leading guide which the superintendent proposes to follow is his "instinct." By a species of divination he would claim to know, among a crowd of applicants, those who will not abuse his confidence, or who would not be injured in their productive capacity, or who would not lose their self-respect by a species of irresponsible alms-giving. This view may be satisfactory to him, but can, with difficulty, be accepted by men who act according to more ordinary methods in forming a judgment upon human affairs, and who have no such unerring internal guide as he supposes himself to possess. The deliberate opinion of this Board is, that all the children under the control of the Guardian Society who can go to the public schools should be instructed there, and that others should be cared for by existing agencies fully competent to deal with them. We feel constrained to reiterate the opinion which we have often had occasion to express, that there are frequently too many competing institutions in supplying charitable relief. There is thus a great and unnecessary expenditure in the mere machinery of charity in providing more buildings and more officers and agents than the work to be done really requires. The present case, in our judgment, clearly illustrates the proposition. The public schools, the New York Juvenile Asylum, the Catholic Protectory and the Children's Aid Society, and other established charitable agencies, can accomplish all the work that is assumed by the institution under investigation, which, at the best, has but a struggling and doubtful existence.

Third. But independent of these more general considerations, we are of the opinion that the general management of the Guardian Society is not of a kind to commend itself to the public favor, but rather calls for marked disapproval. Its management is criticised on these grounds: (1.) The power of the superintendent is excessive, and left without the usual checks and safeguards. (2.) The cost of collections and agents is great, and disproportionate to the amount collected. (3.) The expenditure is great for the result achieved.

In regard to the first point of criticism, the testimony is uncontradicted that the substantial management of all affairs is in the hands

of the superintendent, Mr. Robertson. We made no inquiry as to Mr. Robertson's fitness for so great a trust, and shall assume that no charges against his good management could be maintained. We object to the amount of confidence reposed. We affirm that it is susceptible of the greatest abuse. No charitable institution has a right to intrust its superintendent with the uncontrolled authority which Mr. Robertson possesses. Such facts as the following are disclosed: Nearly all the expenditures are made by him in person. The bills are made out in almost every case to him in person. The treasurer stated that they were made out to him, except where he was not personally known, and then to the society. There is thus an abundant opportunity for patronage to dealers whom he might favor. The course of business is for the treasurer to hand over a considerable sum of money to him, for which he gives a memorandum note as evidence of a loan. He then pays out the money, takes vouchers, and returns them to the treasurer and takes up his note. No one knows whether the money is really paid to the persons by whom the bills purport to be drawn; everything is left to Mr. Robertson. As the treasurer said, he is in substance "the society." The directors rarely, if ever, visit the schools as a body; occasionally they go individually. It is not to be wondered at that the office of treasurer is one that goes begging, and which few like to hold. It should be added that the qualifications of the teachers are solely tested by Mr. Robertson, who also selects them.

But the worst feature of the management remains to be disclosed. During the past year Mr. Robertson expended about five thousand dollars (\$4,937.02), substantially without vouchers. He presents periodically an account of small items expended by himself in cash and clothing and food, amounting in the aggregate to the sum already named. The entries in these accounts assume this form: "Cashes, \$10; sickness, \$2; two boys, \$3," etc. By the term *cashes*, which appears over and over again in his accounts, he means a gift of money to the poor. There is no evidence anywhere supplied that he pays out this money. The officers of the society simply

pay the money to him and take his word for it. Nor is there any proof other than his "instinct" that he pays the money to worthy objects, or that the recipients of his bounty make a good use of it. On these points we are left wholly in the dark. In the hands of an unscrupulous or dishonest man what ready opportunity for speculation or favoritism among his poorer acquaintances! What power one must derive from the free use of so considerable sum of money! We do not wish to intimate that this trust has been intentionally abused. We have no knowledge whatever on the subject. Our controversy is with the directors. We desire to maintain that with such a system they ought not to be trusted with public moneys. In our opinion, money should not go into the secretary's hands. There should be some system of orders by which some grocer or clothier should give satisfactory evidence that the benefaction had found its way to the recipient intended. The cases must be rare in which money is needed. There should also be some means of investigation, by which the meritoriousness of a claim for charity should be tested. At present all is left to chance and to the immediate opinion of the secretary or superintendent, founded, perhaps, on some former information and perhaps on present impressions.

(2.) The charges for collection and "agency" are very great, amounting to nearly fifty per cent of the amount collected. The amount of the subscription for the year ending October, 1871, was \$6,329.50. The payment to collectors and agents was \$2,860.12. We could not ascertain distinctly what this agency was. It was some kind of service over and above the salary of the superintendent and teachers, janitors, book-keeper, etc. There could be no such legitimate services connected with State appropriations. The only inference that could be fairly drawn was that it cost \$2,860.12 to collect \$6,329.50. Collectors are now paid by the week, from fifteen to thirty dollars per week. It seems strange that for every dollar collected nearly fifty cents are expended in the process of collection. Can a charitable institution like this make a fair case for the bounty of the State when it has no fixed income, when its pro-

perty is nominal, being burdened by a heavy debt, and when, in its desperate struggle for existence, it expends in collection half its receipts from subscribers, having as its net income from other sources than the State appropriations less than \$4,000?

(3.) The cost of the institution when compared with the results achieved is too great. In order to bring the point clearly to view, it is necessary to state the amount of the income, the actual work done, and the amount of expenditures in connection with the number of officers employed. The receipts from the State for 1869, from special and *pro rata* appropriations, were \$12,491; for 1870, \$12,217.50; for 1871 (unpaid, but estimated at), \$12,135.35. The city of New York also paid, in 1869, \$4,336, and in 1870, \$3,000. The private cash contributions were, in 1869, \$6,247.27; in 1870, \$4,649, and in 1871, \$6,833.80. The current expenditures for the maintenance of the institution in 1870 were \$24,912.67, and in 1871, \$23,268.28. The number of scholars in the schools is best shown by the days' attendance, as reported to the Comptroller. There were for the year ending October 1, 1871, 108,255. Assuming five days to the week, there was, on the supposed average of 500 children, an attendance of that number for about forty-three weeks. But the register shows much irregularity of attendance. The whole number of scholars for the year is 1,314. The whole number of days' attendance was 108,255. This would give an average attendance of a little more than eighty-two days.

The expense during the year referred to for the maintenance and instruction of each child for the year, amounting to an average attendance of 500 for forty-three weeks, was about forty-six dollars and fifty cents. This sum is arrived at by dividing the sum of \$23,268.28 by the number of scholars, 500. The subject may be regarded from another point of view. The amount bestowed for food and clothing and general charities was \$3,539.97. If this sum be subtracted from the whole current expenditure, \$23,268.28, there will remain for other items, such as instruction and general management, the sum of \$19,728.31. If this sum be divided by the assumed

number of scholars (500) there will be attributable to the cost of instruction alone the sum of thirty-nine dollars and forty-five cents for each scholar. But the whole case has not yet been stated. One-third of those children should be in the public schools. There would then be left for the care of the society about 335 scholars. The main reason given by the superintendent for the presence of these children is the influence they have with poorer children, and the advantage derived from their coming together in this same school. The cost of educating all is to be increased for the benefit of the poorer class, numbering 335. This view makes the annual cost for each of that number, for mere instruction, nearly sixty dollars (fifty-nine dollars and six cents). This number is the result of dividing \$19,728.31 (general expenditure) by 335. The Board of Charities has been credibly informed that this class of children can be properly instructed at an expense of not exceeding fifteen dollars per scholar. We are clearly of the opinion that the State should watch with a scrutinizing eye all efforts made by charitable institutions to supply extraordinary means of instruction to those who should attend the public schools. This is not only the dictate of a true economy but of a sound public policy. It is the interest of the State that the method of education should be homogeneous, at least as to those who are its own wards—the poor and the needy. On these grounds this Board is of the opinion that the Juvenile Guardian Society can give no good reason for claiming an appropriation from the State, and that the Comptroller will be justified in using such power as he may possess to withhold appropriations already made under apparent misconception of the facts. We should add that owing to pressing exigencies this report has been prepared without as much detailed exposition of the accounts as would have been desired by this Board. Enough has been adduced, however, to show the general character of this society. Through the kind co-operation of the book-keeper of the society, Mr. Mallory, a detailed account of every item of expenditure of the society during this year, ending October 1, 1871,

is in our possession, and will be at the service of the Comptroller for any further examination he may desire to have made.

By order of the Board of State Commissioners of Public Charities.

THEODORE W. DWIGHT,

Vice-President and Acting President.

CHARLES S. HOYT, *Secretary.*

NEW YORK, *April 16th*, 1872.

HOUSE OF REFUGE ON RANDALL'S ISLAND.

REPORT ON SPECIAL CHARGES PREFERRED AGAINST IT BY CERTAIN
NEWSPAPERS IN THE CITY OF NEW YORK.

NEW YORK, *August 12th*, 1872.

The Board of State Commissioners of Public Charities having been requested by the managers of the Society for the Reformation of Juvenile Delinquents in the City of New York to inquire into the validity of certain charges of mismanagement and abuse of official power, preferred against the superintendent and officers of the House of Refuge on Randall's Island by some of the leading newspapers in the city of New York, and having, in obedience to the aforesaid request, examined under oath a number of witnesses, also the daily journal, the punishment record and shop accounts kept with boys at the House of Refuge, with a view to investigate the substantive matters upon which such complaints were alleged to rest, do hereby report :

First. That as to the *first* charge, viz. : "That the said managers neglect to furnish the inmates of the said House of Refuge with good wholesome food in sufficient quantities for their proper nourishment :"

They find that such charge is not proved, but, on the contrary, that the character of the established dietary has been greatly improved within the past few years, and is in no degree amenable to censure.

Second. That as to the *second* charge, viz.: "That the said managers compel the said inmates to labor incessantly, and impose upon them tasks greater than their strength can sustain, whereby health is often impaired and spirits broken, and that reform is wholly subordinated to the interests of the contractors, and to the purpose of realizing the greatest amount of money possible from the labor of said inmates:"

They find that such charge is not proved, inasmuch as any industrious boy can complete the task assigned him in less than the allotted period of daily labor, and many, in fact, constantly do so.

Third. As to the *third* charge, viz.: "That under the direction of the said managers, the punishments inflicted upon the said inmates are cruel, unusual and excessive, in consequence whereof the said inmates have been driven to revolt against the authority of the house, and that such revolts have been attended with injury to the officers and with loss of life:"

They find that such charge is *not* proved, no exceptional or extraordinary punishment having been employed but once, and that on the occasion of and subsequent to a revolt which assumed alarming proportions, and under the circumstances justified the measure of punishment inflicted.

Fourth. As to the *fourth* charge, viz.: "That the said managers hold out inducements to the boys to earn money for themselves, and then defeat their hopes and take away their earnings wrongfully:"

They find that such charge is *not* proved, the few instances of wages withheld being those of boys violating some necessary rule of the shop, or absconding from the institution.

Fifth. As to the *fifth* charge, viz.: "That the said managers are ignorant of the internal workings and condition of the said House of Refuge, and that because thus ignorant they have retained in office, as superintendent, for several years past, Israel C. Jones, a man wholly unfit and unworthy of the position, and whose administration is characterized by brutality and neglect of the great interests committed to his care:"

They find that such charge is not only disproved by the entire testimony in the case, but a gross calumny upon the character of a most worthy and efficient officer.

Siath. As to the *siath* charge, viz.: "That the managers of the said House of Refuge have neglected to provide *proper* religious instructions for said inmates," a charge supplemented by another of similar purport presented in the name of a committee of Catholic gentlemen of the city of New York, in the words following:

"That as to the Catholic children in the institution, the religious teaching and services are insufficient; that the liberty of conscience of such children is in reality interfered with, because they are not allowed to perform religious duties which their conscience tells them are obligatory upon them, and necessary aids towards the leading by them of a proper life:"

The Commissioners conducting this examination have referred this charge, together with all testimony pertaining to it, to the consideration and action of the whole Board of State Commissioners of Public Charities.

(Signed,)

NATHAN BISHOP,

*State Commissioner of Public Charities
for the First Judicial District.*

JNO. ORDEONAUX,

Associate Secretary.

NEW YORK CITY ASYLUM FOR THE INSANE, WARD'S
ISLAND, NEW YORK.

REPORT OF THE COMMITTEE OF THE BOARD OF STATE COMMISSIONERS
OF PUBLIC CHARITIES APPOINTED TO INVESTIGATE CERTAIN CHARGES
AGAINST THE COMMISSIONERS OF CHARITIES AND CORRECTION OF
NEW YORK FOR MISMANAGEMENT OF THE AFFAIRS OF THE NEW
YORK CITY ASYLUM FOR THE INSANE ON WARD'S ISLAND, NEW
YORK.

To the Board of State Commissioners of Public Charities:

The undersigned, a committee of the Board of State Commissioners of Public Charities, appointed by the President to investigate certain charges preferred by Dr. M. G. Echeverria, late resident physician of the New York City Asylum for the Insane on Ward's Island, against the Commissioners of Public Charities and Corrections for mismanagement of the affairs of that institution, having made a careful investigation of the same, respectfully report:

The charges having emanated from Dr. Echeverria, the committee invited him to appear before them and to testify to all matters in question within his personal knowledge, and to bring forward any other evidence which he might wish to present.

The Commissioners of Public Charities and Corrections were in like manner invited to be present, and to submit whatever testimony they chose to offer in reply to these charges or bearing upon the questions at issue.

The hearing commenced on Friday, the 20th of December, 1872, before Commissioners Dwight and Bishop and Associate Secretary Ordronaux, acting as a committee of the State Board, all the parties in interest being present. Dr. Echeverria appeared with counsel.

In view, also, of the fact that Dr. Echeverria was the sole author of the charges, appearing both as an accuser and chief witness to their authenticity, the committee allowed him the greatest latitude in testifying, as well in time as in matter, and in this way two days were occupied by him in giving evidence, both oral and written, in

support of his allegations. He did not offer any other testimony than his own on the subject-matter under consideration.

On their part, the Commissioners of Public Charities and Corrections declined to avail themselves of the aid of counsel, and although informed of their right to testify, waived the privilege, and called as witnesses persons who, from their past or present official positions, had the opportunity of knowing all the facts connected with the insane asylum on Ward's Island. Notwithstanding some of these witnesses were still in the employment of the Commissioners of Charities and Corrections, their testimony appeared unbiased, and remained unimpeached after a full opportunity given Dr. Echeverria to ask any questions through the committee which he might see fit, a privilege of which he accordingly availed himself. The commissioners occupied but one day in submitting such oral and written testimony as they deemed necessary to show that the charges preferred against them were unreasonable and untrue. And in order that there might be no ground for questioning the exact purport of the testimony offered, an official stenographer was employed, who reported the evidence of each witness as given.

Commissioner Dwight of the State Board not being able to attend after the first day's proceedings, the investigation was carried on by Commissioner Bishop, of the First Judicial District.

In opening their report, the committee would say that they carefully avoided entering into any inquiry touching the personal relations of Dr. Echeverria to the Commissioners of Charities and Corrections. Appearing as a public prosecutor, his position as a discharged officer of the commissioners rendered it extremely difficult to overlook the past connection between them. Confining themselves exclusively to the field of their statutory powers and obligations, the committee accordingly investigated the substantial charges alone which were preferred by Dr. Echeverria, as also whether the Commissioners of Public Charities and Corrections had neglected to perform their duties towards such inmates as their official guardians.

CHARGES.

Among the many charges framed in general terms, and alleging negligence or omission of duty, the committee at the outset considered some as unimportant and others as foreign to the sphere of their present investigation; such, for example, as that the commissioners had shown partiality to certain officers of the asylum, to the injury of the influence of the resident physician, who had made complaints against them, and the committee accordingly declined to hear testimony upon them. They felt it their duty, under the statute, to confine their inquiries to such matters alone as related to the condition and treatment of the patients in the asylum; and, in considering the various charges presented, the committee have endeavored to weigh each charge with reference rather to its obvious import than to the loose and general terms in which it is stated.

One of the charges was that the inmates of the asylum did not have a sufficient supply of wholesome food. After hearing the testimony offered on both sides, the committee were convinced that the inmates of the asylum did not suffer in health on this account, as they had substantially the same food as the inmates of the Blackwell's Island Asylum, both as to quantity and quality, which, according to the evidence, was shown to be adequate and proper.

Another charge was that the commissioners failed to supply sufficient and suitable clothing and bedding for the inmates. Considering that among three or four hundred insane men, there will always be some who, starting with good suits of clothing in the morning, will often tear them literally in pieces during the day, so that the garments cannot be used again, it is not a matter of surprise to find in any lunatic asylum a few persons, at times, more or less destitute of clothing. The evidence shows that the commissioners exercised ordinary care and foresight to meet the usual demands of the institution in this particular, and in one instance appear to have taken special pains to forward clothing, by sending up their supply boat for that purpose on Sunday, contrary to usage.

Another charge was that the commissioners had negligently

crowded too large a number of patients into the asylum in proportion to its accommodations. As this is a question of fact, the committee have appealed to the architect's estimates of the capacity of the institution, and also compared the same with the daily census during the period when it is alleged that such overcrowding existed and caused the epidemic of typhus fever. From these sources of information they find that the architect designed the asylum on Ward's Island to accommodate 431 patients, and, by comparing this number with the daily census, that there were never more patients than beds during the time the epidemic raged, viz. :

Average daily number during January, 1872.....	296
Average daily number during February, 1872.....	372
Average daily number during March, 1872.....	398
Average daily number during April, 1872.....	401

But these patients being distributed in wards by the exclusive authority of the resident physician, whose duty it is to classify them so as to promote the best interests of the whole and not of any particular class, it might happen under the application of certain rules of classification that some wards might be overcrowded while others were not half filled, and thus an erroneous impression be given that the whole institution was overcrowded, when, in reality, this applied only to a part. The distribution of patients in all asylums for the insane must be left to the practical wisdom and good judgment of the resident physician; nor can any board of managers be justly held responsible for overcrowding in special parts, particularly when, as in the present instance, the evidence showed that there were unoccupied rooms in the building which might have been used if the resident physician had, in every emergency, turned them to account. The testimony shows that, in addition to the thirty or more unoccupied beds, during the time the epidemic prevailed, viz., in January, February, March and April, 1872, there were two large rooms, in fact, known as the gymnasium and the chapel, which might have been converted into either dormitories for such a class of patients as did not require bath-rooms or water-closets contiguous to

their bedrooms, or, again, into a hospital by using earth closets and portable baths, both which could have been readily obtained. For it does not appear from the testimony that the patients transferred from Blackwell's Island to Ward's Island were in any sense of an inferior class, but, on the contrary, were possessed of fair average health and personal habits as to cleanliness. The testimony further shows that, while this alleged overcrowding occurred at the asylum on Ward's Island, all the buildings on Blackwell's Island devoted to the insane were overcrowded to an alarming extent, and by an overplus of at least 300 patients, even after nearly 400 had been transferred to the new hospital on Ward's Island, yet no typhus fever or any other epidemic made its appearance in the old hospital. From all which circumstances the committee are led to the opinion that the epidemic of typhus was not exclusively due to overcrowding, but that other predisposing causes conspired to its production.

Another charge was that the commissioners never inspected the asylum wards, or spent any time therein, to ascertain personally the condition of their inmates. The evidence, corroborated by several witnesses, shows that the commissioners are in the habit of visiting several times a week every institution under their care, and did so visit the asylum on Ward's Island, but, in obedience to a general rule adopted by them for the better supervision of their employes, never announce or communicate the fact of their presence or inspection of any institution to either its warden, resident physician or other superintendent; the object of their visit being to see the institution in whatever condition it may happen to be, and not as it might be prepared for their coming, if notice were given of their intended inspection.

Another charge was that the commissioners neglected to guard against habitual prostitution occurring between some of the patients and the work-house women brought over for service in the asylum as scrubbers, washers and scullions. This grave general charge was narrowed down by Dr. Echeverria's own testimony to only two cases, and the proof of these rested exclusively upon the confession of the

lunatics themselves, made to the resident physician in answer to his inquiries. On the contrary, the commissioners produced testimony to show that they had exercised due care to prevent all evils of this kind, by never allowing the women to lodge in the asylum. They uniformly sent them to the asylum in the morning, and returned them after their day's labors to their proper quarters in a distant out-building. The want of adequate means to hire servants for the public charitable institutions under their control, compels the commissioners to use the labor of the paupers for various kinds of services, and in this way such persons are placed in circumstances that may be occasionally converted by them into opportunities to transgress the laws of chastity, despite all precautions taken to prevent them. This is nothing more than is likely to happen in any aggregation of vagrants, and the testimony shows that the commissioners took all reasonable care to prevent its occurrence. The fact, also, of its limitation to two instances, alone, is the best commentary upon the efficiency of their vigilance in this direction.

Another charge was that the commissioners retained in the service of the hospital one or more attendants who were intemperate and cruel to patients. The testimony shows that on one occasion an attendant was dismissed on a Thursday, on complaint made by Dr. Echeverria that he was unfit for duty; and further, that on the following Monday he applied for an appointment as an attendant in the same institution, and, not being personally known to the commissioners, imposed himself upon them so that he was sent to the asylum on trial, but when the commissioners visited the institution on the next day, Tuesday, they learned to their surprise that he was the same man they had ordered discharged on the previous Thursday; whereupon he was at once dismissed.

In weighing the value of charges of negligence or omission of duty, brought against any branch of a city government, regard should always be had to the fact that it is but one link in a great chain, every vibration of which affects each individual part. Imputations of personal delinquency in official acts of an impersonal char-

acter should not be measured by the same standard that applies to individuals trusts. Public officers are not always independent actors in the management of their separate departments, being often hampered by conditions existing in other branches of a common government, and by reason of which their own acts may be made to wear a semblance of imperfection entirely due to causes beyond and above their control. Great public charities having always indeterminate limits, in proportion to the magnitude of the dependent classes for which they are intended to provide, cannot, by mathematical computation, foreknow exactly the numbers which may at any given time be precipitated upon them. Hence, with them the problem of providing for the future is one of approximation and average probabilities. It is inevitable from this law of ratios in population, that with the wisest foresight, some unanticipated contingencies will arise for which there is but an insufficient supply of means, and as such means cannot be extemporized by a department, but can only be obtained through the legitimate channel whence appropriations are drawn, it may follow that cases of hardship will occur for which a department is not properly responsible, owing to the crippled state of its finances.

Such a fact appears to have been the case with the Commissioners of Public Charities and Corrections, and an inspection of their minutes shows that during the latter half of the year 1871 they were so limited in means for providing adequate accommodations for the insane under their care, that they had to submit to the overcrowding of every portion of the hospital on Blackwell's Island, even after opening the new hospital on Ward's Island. Without funds to build, and compelled, during the last six months of the year 1871, to borrow means to carry on the ordinary expenses of their department, they were not able to deal as successfully with the existing emergencies as they otherwise would have done. Their books show that from a required appropriation of \$1,695,000, to meet the current expenses of 1871, they consented, in view of the embarrassed state of the city's finances, to retrench the scale of supplies in the

various institutions under their charge to the barest necessities, and to accept a reduction of \$200,000 on the above appropriation, thus giving them but \$1,495,000 to carry on all their several departments. And they further show that, in the spring of 1871, this already reduced appropriation was cut down to \$934,000, leaving them without any actual means to meet their obligations during the remainder of the year. The committee consider the statement of these facts but an act of justice to the commissioners, and they have given them due weight as proof in exoneration of the charges brought against them.

Under the light of the testimony adduced, and which testimony has hereinbefore been reviewed in connection with each separate charge, the committee are constrained to say that, in their opinion, the Commissioners of Public Charities and Corrections have not mismanaged the affairs of the New York City Asylum for the Insane on Ward's Island, but on the contrary have, considering all the circumstances in the case, discharged fully and faithfully their duties as public officers, always using the means at their command in the best and wisest way to promote the welfare of the persons committed to their care.

All which is respectfully submitted.

NATHAN BISHOP,

*State Commissioner of Public Charities
of the First Judicial District.*

JOHN ORDRONAU,

*Associate Secretary of the Board of State
Commissioners of Public Charities.*

Dated NEW YORK, January 7th, 1873.

Read and approved at a meeting of the Board held at Albany,
January 11th, 1873.

Attest:

CHARLES S. HOYT,

Secretary of the Board.

APPENDIX.

BOARD OF STATE COMMISSIONERS

or

PUBLIC CHARITIES.

REPORT OF THE SECRETARY.

SECRETARY'S REPORT.

PRELIMINARY.

To the Board of State Commissioners of Public Charities :

GENTLEMEN.—In pursuance of the requirements of your Board, I respectfully submit this my annual report relating to the various subjects which you have instructed me to investigate, and to the work performed by me during the year ending December 31st, 1872.

BUSINESS OF THE OFFICE.

The office work has been largely increased the past year in collecting statistics relating to the insane and idiots, and in analyzing and tabulating the returns. This subject will be hereafter referred to.

Returns have been procured from the various institutions subject to the visitation of the Board, and the results are given in tabulated statements hereto annexed. The printed reports of the institutions of this State, and of other States and countries, as far as practicable, have also been collected. These are on the files of the office, and they contain much valuable information.

In addition to this work, an extended correspondence has been conducted during the whole year. More time than heretofore has also been devoted to personal conference with the officers of institutions and others having business with the Board. These several office duties have so largely occupied my time as to prevent my engaging in visitations as much as desired. If the Secretary is to be employed in the inspection of institutions, additional clerical force will be necessary to aid in conducting the office work.

STATISTICS RELATING TO INSANE AND IDIOTS.

At a meeting of the Board, held at Albany, October 20, 1871, the following resolution was adopted :

Resolved, That this Board will endeavor to ascertain, as nearly as possible, the number and situation of the insane and idiots of the State of New York, December 31st, 1871, and that the Secretary be instructed to enter early upon this work, securing as far as practicable the voluntary aid of the members of the medical profession generally throughout the State, and that he be authorized to employ such other agencies as he may deem proper for its accomplishment.

In accordance with this resolution, a circular letter requesting information as to insane and idiots, and setting forth the objects of the inquiry, was thereupon prepared and approved by the Board. A copy of this letter, with blanks for the name, sex, age, nativity, etc., of each of these classes, was mailed, on the 20th of December, to one or more physicians in nearly every town in the State, whose address had been learned from the officers of the various county medical societies, and to all the physicians in the cities and large villages whose names and residence could be obtained. In a very few towns having no physician, the blanks were addressed to supervisors. A like communication at the same time was sent to the officers of the various public and private institutions having the custody of these classes, and also to the officers of institutions in other States in which it was thought probable that insane or idiotic persons of this State might be held for treatment or care.

The general plan of this work, and the extent to which it has then progressed, was given in my last annual report. At that time (January 20, 1872) returns had been received from nearly one-half of the towns and very generally from the cities and institutions. The inquiries then in progress were continued during the entire year, and until returns were received from nearly the whole State. In the prosecution of this work nearly seven thousand printed and written communications were addressed to physicians and the officers of institutions. The answers to these, in most cases, were promptly

and carefully prepared, and the profession throughout the State, as well as the officers of institutions of this and other States, are entitled to great credit for the general interest shown by them in the matter. The results of these inquiries will be found in the tables annexed to this report.

1. *Relating to the Insane.*

The whole number of insane belonging to the State, December 31st, 1871, according to the reports, was 6,775. The returns relating to this class in the custody of friends, and covering localities having a population of 3,947,394, after rejecting all duplicates, give the names of 1,364. Estimates for the several localities from which no returns were received, according to the population, give 218 more, or a total of 1,582 insane in the State, in family care.

The result of all the inquiries relating to the insane is shown by the following statement:

Statement showing the number and situation of the Insane belonging to the State of New York, December 31st, 1871:

SITUATION.	Males.	Females.	Total.
In the custody of friends	763	830	1,593
In the State institutions.....	439	654	1,093
In private institutions.....	121	191	312
In city almshouses and city asylums	841	1,392	2,233
In county poor-houses and county asylums	588	731	1,319
Institutions of other States.....	86	75	161
In the asylum for insane criminals.....	70	5	75
Total	2,907	3,868	6,775

Of these it appears that 3,544 were natives and 3,231 foreigners; 1,002 were single, 2,714 married, and the civil condition of 459 was not ascertained.

The ages were as follows:

Under twenty years.....	157
Twenty years and less than thirty.....	1,140
Thirty years and less than forty.....	1,727

Forty years and less than fifty	1,570
Fifty years and less than sixty	1,150
Over sixty years	697
Ages not stated	334
Total	<u>6,775</u>

The several occupations previous to the insanity are shown by the following statement :

Laborers	677
Domestic	1,665
Agricultural	542
Mechanical	637
Commercial	244
Professional	165
No occupation	411
Not stated	2,434
Total	<u>6,775</u>

The inquiries were extended so as to include the insane who recovered, and those who died during the year. The number of recoveries reported was 761, and the number of deaths 502. The following statement shows the situation under which the recoveries and deaths occurred :

	Recoveries.	Deaths.
In the custody of friends	43	35
In the State institutions	175	110
In private institutions	98	37
In city alms-houses and city asylums	374	250
In county poor-houses and county asylums	40	50
In institutions of other States	27	16
In the asylum for insane criminals	4	4
Total	<u>761</u>	<u>502</u>

If the foregoing be added to the number of insane living December 31st, 1871, it will give a total of 8,088 insane belonging to the State during the year, as follows:

Number of insane living December 31, 1871.....	6,775
Number who recovered during the year	761
Number who died during the year	502

Total insane of the State of New York for the year 1871, 8,038

The following table shows the duration of the disease :

Table showing the duration of the Disease of 8,038 Insane of the State of New York, for the year ending December 31st, 1871.

LIVING, DEC. 31, 1871.	Total.	Less than one year.	One year and less than five years.	Five years and less than ten.	Ten years & less than twenty.	Twenty years and less than thirty.	Thirty years and less than forty.	Forty years and less than fifty.	Over fifty years.	Not stated.
In the custody of friends.....	1,589	277	442	153	187	104	55	25	2	236
In the State institutions	1,098	204	342	165	120	45	12	2	2	190
In private institutions	312	87	59	25	28	8	2	1	..	152
In city alms-houses and city asylums.	2,233	541	935	410	267	44	5	1	1	28
In county poor-houses and county asylums	1,319	24	144	139	129	53	12	5	..	802
In institutions of other States.	161	12	37	20	54	16	1	1	..	10
In the asylum for insane criminals.....	75	5	15	1	6	..	....	..	..	42
Total	6,775	1,100	1,975	923	811	270	88	25	6	1,567
Recovered during the year 1871	761	420	266	10	4	2	....	....	..	29
Died during the year 1871.....	502	150	189	59	25	10	2	1	..	66
Aggregate	8,038	1,670	2,450	992	840	282	90	26	6	1,672

It will be seen by the foregoing table that 1,670 persons in the State, or one to every 2,624 of the population, were taken insane during the year. In 1,672 instances, the duration of the insanity was not ascertained. The returns, however, show that these generally were cases of long standing, most of whom were in family care or in county poor-houses.

2. Relating to Idiots.

The returns relating to idiots, in the custody of friends, were not as full as those pertaining to the insane. In the country towns the enumeration was quite complete. In the cities, however, but little information could be obtained in regard to this class. The whole number reported was 1,312, and applying the ratio thus obtained to the unreported territory, according to the population, would give

244 more, or 1,556 idiots in the State in family care. The result of all the inquiries relating to this class is shown by the following statement :

Statement showing the number and situation of the Idiots of the State of New York, December 31, 1871.

SITUATION.	Male.	Female.	Total.
In the custody of friends.....	959	597	1,556
In the State asylum.....	74	63	137
In the city alms-houses and city asylums....	109	76	185
In county poor-houses	218	221	434
Total)	1,355	957	2,312

Of these it appears that 2,092 were native and 220 foreign born. The ages were reported as follows :

Under ten years	188
Ten years and less than twenty.....	579
Twenty years and less than thirty.....	446
Thirty years and less than forty	281
Forty years and less than fifty	251
Over fifty years.....	147
Ages not stated.....	420
Total	<u>2,312</u>

The results of the inquiries by the Federal census of 1870, and by the Board in 1871, are herewith compared :

COMPARATIVE STATEMENT OF THE NUMBER OF INSANE AND IDIOTS OF THE STATE OF NEW YORK, BY THE FEDERAL CENSUS OF 1870, AND BY THE INQUIRIES OF THE BOARD IN 1871:

The following relates to the insane :

	Male.	Female.	Total.
By the Federal census.....	2,707	3,646	6,353
By the inquiries of the Board	2,907	3,868	6,775
Excess by the inquiries of the Board..	<u>200</u>	<u>222</u>	<u>422</u>

The population of the State by the census of 1870 was 4,382,759. The proportion of insane by the Federal enumeration was 1:690; by the inquiries of the Board, 1:647. The population of the United States and Territories, at the same time, was 38,558,371; the number of insane, 37,382; proportion, 1:1031.

The following relates to idiots:

	Male.	Female.	Total.
By the Federal census.....	1,387	1,099	2,486
By the inquiries of the Board	1,355	957	2,312
Excess by the Federal census	32	142	174

The proportion of idiots to the population, by the Federal census, was 1:1763; by the inquiries of the Board, 1:1896. In the United States and Territories the number of idiots by the Federal enumeration was 24,527, or 1:1572.

The results of the inquiries as to *both insane and idiots* are here stated:

	Male.	Female.	Total.
By the Federal census.....	4,094	4,745	8,839
By the inquiries of the Board	4,262	4,825	9,087
Excess by the inquiries of the Board..	168	80	248

It thus appears that the proportion of both insane and idiots by the Federal enumeration was 1:496; by the census of the Board 1:482. The number of insane and idiots in the United States and Territories by the census was 61,909, or 1:623.

It will be seen by the foregoing that the number of insane and idiots of this State, found by the inquiries of the Board, differs only slightly from the number obtained by the federal enumeration. A large amount of information, however, relating to these classes, was secured by such inquiries, not given by the census returns, which, it is believed, will prove valuable. This will be found in the tables heretofore referred to, and to which attention is invited.

LOCAL CHARITIES.

These charities, supported wholly by counties and cities, are as follows :

1. County poor-houses.
2. City alms-houses.

The act establishing the Board places these institutions under its inspection, and it is required that all of them shall be visited as often as every two years. Such general inspection was made in 1868, in 1870 and in 1872. A large portion of them also have been visited in the alternate years. These charities have been so fully described in former reports, that no extended account of them here is deemed to be necessary. It is thought proper, however, to notice briefly the changes and improvements which have been made in their condition and management since first inspected, and also to refer to the tables relating to their statistics and expenditures, for the past year, hereto annexed.

1. *County Poor-houses.*

The tabulated returns of the county superintendents of the poor furnish the following information relating to the various county poor-houses and the number of persons maintained in them, or otherwise aided, together with the amount expended during the year ending November 30, 1872.

The number of county poor-houses in the State is fifty-six. The whole number of acres of land connected with them is 8,223. The estimated valuation of the several establishments, including real estate, buildings, fixtures, etc., was \$2,096,900.09.

The number of persons in the several county poor-houses

the past year was	19,321
The number temporarily aided was.....	42,431
Total supported and aided	<u>61,752</u>

Since that time new buildings, with modern improvements, have been erected in nearly one-third of the counties. In many others additions have been built and improvements and conveniences introduced. The buildings in a few counties, however, remain the same as then reported, the defects then enumerated being at present more apparent, and the structures more dilapidated.

The greatest improvement in the county poor-houses is in the condition of the insane. The number of this class in these institutions in 1868, was 1,528. Most of these were cases of long standing, many of whom had been confined in cells, or otherwise restrained, for a series of years. They were generally filthy, violent and destructive, and deemed by the local authorities to be beyond the reach of improvement.

Since the opening of the Willard Asylum, in 1869, there have been 834 insane transferred from the county poor-houses to that institution. In this number there were included the most turbulent and violent cases, thus leaving the mild and harmless class under local control. The accommodations for these in most of the counties have been greatly improved, and a better intelligence nearly everywhere is apparent in their management and care.

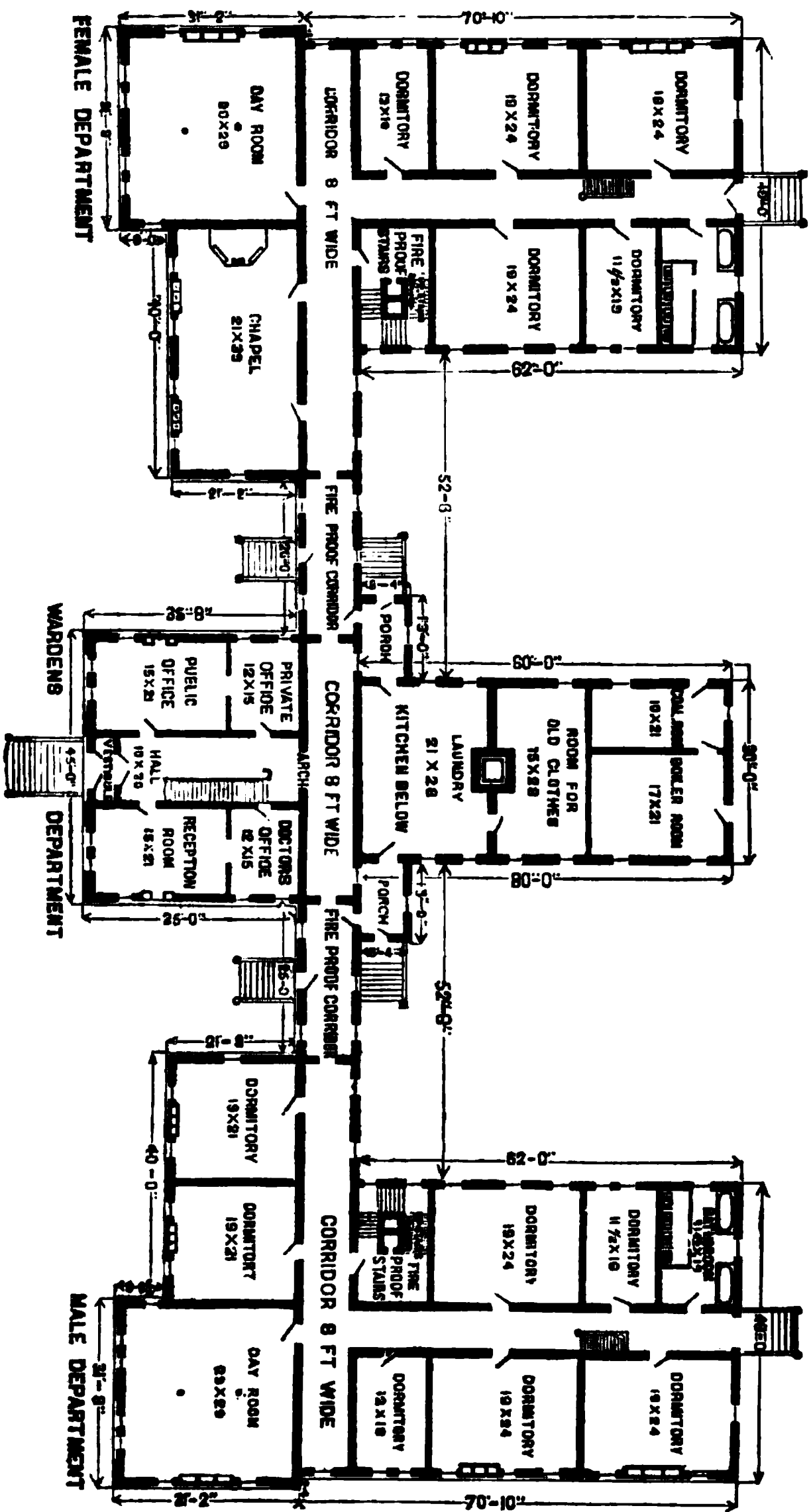
The number of insane in the county poor-houses and county asylums on the 30th of November, 1872, was 1,297. The Willard Asylum, at the same time, contained 672 of this class, heretofore transferred from these institutions. It will be seen, therefore, that without the interposition of the State, the counties at present would be burdened with the care of nearly 2,000 chronic insane.

A few of the large and populous counties, having suitable buildings, prefer, and probably should be permitted, to provide for their chronic insane. The local authorities generally, however, desire to be relieved of their care. As most of the county institutions are crowded, there is still urgent need for additional accommodations for this class of insane.

The deplorable condition of idiots and epileptics in the county poor-houses has been pointed out in former reports. The returns



MONROE COUNTY POOR-HOUSE, BOSTON, N. Y.



FIRST FLOOR PLAN.

MONROE COUNTY POOR-HOUSE, ROCHESTER, N. Y.

show that these institutions contain 374 of the former and 84 of the latter. They have no suitable accommodations for the custody of these classes, and their care is a grievous burden upon the counties.

From information furnished this office by physicians in the various counties, it is believed that there are at least 500 epileptics in this State, in family custody, many of whom are unsafe to be at large. The insane asylums generally decline to receive epileptics, and the general hospitals are not adapted to their treatment and care. As a result, the private family, not unfrequently of moderate means, is distressed by their presence, and the community endangered by their outbreaks of violence. The establishment of a State hospital for this class, it is believed, would be wise economy, and conduce largely to the safety and welfare of society.

A large number of idiots also, it appears, are under private care throughout the State. In many instances these occasion great hardships, often reducing entire families to pauperism. The necessity for further public provision for this class has been fully stated in former reports, and true economy would seem to dictate that it should be made as early as possible.

The returns of the superintendents of the poor show a large decrease in the number of children as inmates of the county poor-houses. In 1868 the number under sixteen years in these institutions was 1,222; in 1869 it was reduced to 920; in 1870 to 792, and in 1871 to 675. The number reported November 30, 1872, was 679. A considerable portion of these were infants, and others idiots, epileptics or paralytics, for whose custody and care no other public provision is made.

It is to be deeply regretted, however, that there are still a considerable number of intelligent children in the county poor-houses. These, if removed, might be educated and trained to lives of usefulness. The poor-houses are wholly unsuited for their care, and the efforts of keepers and teachers for their intellectual and moral culture are mainly lost in the surrounding associations.

The various orphan asylums and homes for the friendless offer accommodations, at moderate rates of support, for all the dependent children of the State. A much larger number than heretofore, it is believed, might by proper effort be placed temporarily in families. There would seem, therefore, to be no excuse for the detention of intelligent children in the county poor-houses.

In addition to the efforts of your Board for the removal of the children from these institutions, other agencies are actively engaged in this direction. Among these are the "State Charities Aid Association," and the managers of the various orphan asylums and other benevolent organizations. It should be added that the superintendents of the poor, and the keepers of the poor-houses also, generally heartily co-operate in this work, and its entire accomplishment it is believed may be early effected.

Among the new poor-houses recently erected in the State, views of two accompany this report, viz., the Monroe County Poor-house, at Rochester, including the ground plan, and the Oswego County Poor-house, at Mexico.

THE MONROE COUNTY POOR-HOUSE.—This institution, situated near the city of Rochester, was completed and occupied near the close of the past year. It consists of a centre building and two wings, each connected with the former by fire-proof corridors. The centre building is forty-five feet square, and is three stories besides the basement and a high attic. It is occupied by the warden and family, and also furnishes room for offices.

The wings each have a width of seventy-one feet in front, forty-nine feet in rear, and a depth of 102 feet. They are both three stories high, and nearly alike in their structure and arrangement. The left is occupied by males and the right by females. The third story of the whole front is used as a hospital. In the rear of the centre structure there is a building thirty feet wide and sixty feet long. The basement of this is used for general kitchen purposes, the first floor for laundry, etc., and the second for the hospital



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OSWEGO COUNTY POOR-HOUSE, MEXICO, N. Y.

kitchen. The entire edifice has a front of 238 feet, and is 105 feet deep.

The basement is built of stone, and the stories above of brick, with partition walls of the same material. The roofs are of slate and the cornices of iron. The floors are of oak and maple, and the stairways of iron, and fire-proof. All the rooms are high and well ventilated. The edifice is plain, substantial and well built, and is appropriately arranged and furnished for its purposes. The entire cost of the building, including steam-heating, plumbing, etc., it is reported, was \$71,000. It will accommodate and suitably classify five hundred inmates.

THE OSWEGO COUNTY POOR-HOUSE, located near Mexico, was completed and occupied in December, 1870. It is a plain, well-built two-story and high basement brick edifice, warmed by steam, well arranged for ventilation, and contains good facilities for bathing. It will accommodate and properly classify one hundred inmates, and also furnishes room for the keeper and his family. The entire structure, including fixtures, it is reported, was built at an expenditure of \$25,000.

The lunatic asylum, situated at the right of the poor-house, is a two-story brick edifice. It consists of a main building sixty-four by thirty-two feet on the ground, and a rear extension thirty by forty feet in area. It furnishes room for fifty patients, and contains apartments for the warden and family. It is reported to have cost about \$20,000.

2. *City Alms-houses.*

The number of city alms-houses is six. The tables relating to these institutions furnish the following:

The whole number of persons supported in the city alms-	
houses during the year ending November 30, 1872, was,	41,459
The number temporarily relieved was	32,453
Total supported and relieved	<u>73,912</u>

The changes during the year were as follows :

Number in the alms-houses December 1, 1871	8,506
Received during the year	32,139
Born in the alms-houses	814
	<hr/>
	41,459
The number discharged was.....	29,271
Bound out	179
Absconded.....	116
Died.....	3,609
	<hr/>
	33,175
	<hr/>
Remaining December 1, 1872, males, 4,133; females, 4,151; total.....	8,284
	<hr/>

The expenditures during the year were as follows :

For support in the alms-houses.....	\$1,056,777 18
For temporary relief	225,912 28
	<hr/>
Total expenditure.....	\$1,282,689 46
	<hr/>

Of the persons supported in the alms-houses during the year, 14,718 were natives, and 26,741 foreigners ; 23,864 were males, and 17,595 females. Of those remaining December 1, there were 2,180 lunatics, 188 idiots, 120 blind, 10 deaf-mutes, 202 epileptics, and 1,386 children under sixteen years.

Attention is invited to the tables appended for further information as to the operations of the several city alms-houses.

COMBINED RESULTS OF THE TABLES RELATING TO THE COUNTY POOR-HOUSES AND CITY ALMS-HOUSES.

By combining the several tables relating to the county poor-houses and city alms-houses, we attain the following results for the year ending November 30, 1872:

The whole number of persons supported during the year was	60,780
The number temporarily aided was.....	74,884
	<hr/>
Total supported and aided	135,664
	<hr/>

The expenditures were as follows :

For support	\$1,620,068 87
For temporary aid	728,209 51
Total expenditure	<u>\$2,348,278 38</u>

The following statement, compiled from reports on file in this office, shows the number of persons supported in the county poor-houses and city alms-houses and the number temporarily relieved, annually, for the five years preceding November 30, 1872, and the expenditures in connection therewith :

	1868.	Supported.	Relieved.	Total.
County poor-houses		21,529	50,953	72,482
City alms-houses		30,741	160,946	191,687
		<u>52,270</u>	<u>211,899</u>	<u>264,169</u>
	1869.			
County poor-houses		19,102	95,297	114,399
City alms-houses		34,595	54,589	89,184
		<u>53,697</u>	<u>149,886</u>	<u>203,583</u>
	1870.			
County poor-houses		18,945	56,771	75,716
City alms-houses		40,191	45,025	85,216
		<u>59,136</u>	<u>101,796</u>	<u>160,932</u>
	1871.			
County poor-houses		18,933	56,906	75,839
City alms-houses		39,286	41,462	80,748
		<u>58,219</u>	<u>98,368</u>	<u>156,587</u>
	1872.			
County poor-houses		19,321	42,431	61,752
City alms-houses		41,459	32,453	73,912
		<u>60,780</u>	<u>74,884</u>	<u>135,664</u>

The expenditures appear as follows :

	1868.		
	For support.	For relief.	Total.
County poor-houses ..	\$687,631 20	\$525,795 75	\$1,213,426 95
City alms-houses.....	939,450 47	155,230 82	1,094,681 29
	<u>\$1,627,081 67</u>	<u>\$681,026 57</u>	<u>\$2,308,108 24</u>
	1869.		
County poor-houses ..	\$633,708 50	\$697,068 14	\$1,330,776 64
City alms-houses.....	980,156 98	284,893 43	1,265,050 41
	<u>\$1,613,865 48</u>	<u>\$981,961 57</u>	<u>\$2,595,827 05</u>
	1870.		
County poor-houses ..	\$568,521 45	\$618,938 90	\$1,187,460 35
City alms-houses.....	1,112,948 84	292,916 25	1,405,865 09
	<u>\$1,681,470 29</u>	<u>\$911,855 15</u>	<u>\$2,593,325 44</u>
	1871.		
County poor-houses ..	\$585,994 25	\$584,522 06	\$1,170,516 31
City alms-houses.....	1,088,298 45	235,830 91	1,324,129 36
	<u>\$1,674,292 70</u>	<u>\$820,352 97</u>	<u>\$2,494,645 67</u>
	1872.		
County poor-houses ..	\$563,291 69	\$502,297 23	\$1,065,588 92
City alms-houses.....	1,056,777 18	225,912 28	1,282,689 46
	<u>\$1,620,068 87</u>	<u>\$728,209 51</u>	<u>\$2,348,278 38</u>

It will be seen from the foregoing statement that the number of persons supported in the county and city institutions, and the expenditures, annually, have not varied very largely for the past five years. The number of dependents provided for in the several State and other institutions probably increases each year. As these are supported by counties and cities, the cost of maintenance should be included in the expenditures for charitable purposes by municipal authorities. The returns, however, do not embrace such expenditures, and the amount, therefore, cannot be determined.

CONCLUSION.

In closing this report I beg, once more, to invite your attention to the statistical tables hereto annexed. These contain a large amount of information not referred to in the preceding pages. They have been prepared with much labor, and it is believed, will repay a careful examination.

All which is respectfully submitted.

CHARLES S. HOYT,
Secretary.

Dated ALBANY, *January* 11, 1873.

A P P E N D I X

TO THE

SECRETARY'S REPORT,

CONTAINING

STATISTICAL AND FINANCIAL TABLES.

TABLE I.

Showing the Number and Situation of the Insane of the State of New York, December 31st, 1871, according to reports on file in the office of the State Commissioners of Public Charities:

<i>In the Custody of Friends :</i>		Male.	Female.	Total.
(See Tables II, III and IV.)		763	830	1,593
<i>In the State Institutions :</i>		Male.	Female.	
New York State Lunatic Asylum, Utica.....	303	242		
Willard Asylum for the Insane, Ovid.....	123	405		
Hudson River State Hospital, Poughkeepsie.....	14	7		
(See Tables V, VI and VII.)		439	654	1,093
<i>In Private Institutions :</i>				
Bloomington Asylum, New York.....	54	78		
Sanford Hall, Flushing (L. I.).....	8	7		
Brigham Hall, Canandaigua.	20	37		
Marshall Infirmary, Troy.....	34	55		
Providence Lunatic Asylum, Buffalo.....	5	24		
(See Tables VIII, IX and X.)		131	191	322
<i>In City Asylums and City Alms-houses :*</i>				
New York City Lunatic Asylum	510	833		
Kings County (Brooklyn city) Lunatic Asylum.....	267	417		
Newburgh City Alms-house.....	6	7		
Poughkeepsie City Alms-house	8	12		
Oswego City Alms-house.....	4	3		
Monroe County (Rochester city) Lunatic Asylum.....	46	70		
(See Tables XI, XII and XIII.)		841	1,302	2,143
<i>In County Asylums and County Poor-houses :</i>		568	731	1,299
(See Tables XIV, XV and XVI.)				
<i>In Institutions of other States :</i>				
Asylum for the Insane, Concord, N. H.	1	3		
Asylum for the Insane, Brattleboro, Vt.	49	44		
McLean Asylum for the Insane, Somerville, Mass.....	3	3		
Lunatic Hospital, Northampton, Mass.....	15	10		
Butler Asylum for the Insane, Providence, R. I.....	1	1		
Retreat for the Insane, Hartford, Conn.....	17	14		
State Lunatic Asylum, Trenton, N. J .....	....	1		
(See Tables XVII, XVIII and XIX.)		86	75	161
<i>In the Asylum for Insane Criminals, Auburn :</i>		70	5	75
Total		2,907	3,868	6,775
(See Tables XX, XXI and XXII.)				

* The City Poor-houses are called Alms-houses in the Statutes. They are the same in general character as the County Poor-houses.

TABLE II.*

Showing the Sex, Nativity and Civil Condition of 1,582 Insane of the State of New York in the custody of friends, December 31, 1871, by counties.

COUNTIES.	Reported.	Estimated.	Total reported and estimated.	Male.	Female.	Native.	Foreign.	Single.	Married.	Not stated.
Albany.....	81	3	84	16	18	29	12	21	12	1
Allegany.....	17	11	28	20	8	19	9	14	13	1
Broome.....	15	1	16	6	10	15	1	7	9	...
Cattaraugus.....	44	14	58	23	35	33	25	27	21	...
Cayuga.....	17	3	20	6	14	18	2	9	11	...
Chautauqua.....	25	4	29	14	15	24	5	10	19	...
Chemung.....	17	1	18	7	11	16	2	8	9	1
Chenango.....	35	1	36	17	19	26	...	21	15	...
Clinton.....	7	1	8	5	3	6	2	4	4	...
Columbia.....	19	5	24	9	15	21	3	14	10	...
Cortland.....	14	1	15	5	10	12	3	11	4	...
Delaware.....	14	1	15	7	8	14	1	9	6	...
Dutchess.....	26	11	37	14	23	35	2	26	11	...
Erie.....	59	16	75	25	40	58	17	46	28	1
Essex.....	20	...	20	9	11	18	2	12	8	...
Franklin.....	7	1	8	5	3	8	...	4	3	1
Fulton.....	12	1	13	5	8	9	4	7	6	...
Genesee.....	19	...	19	12	7	14	5	9	10	...
Greene.....	15	...	15	10	5	14	1	8	7	...
Hamilton.....	...	...	...	...	...	...	...	...	...	...
Herkimer.....	17	13	30	11	19	24	6	14	16	...
Jefferson.....	31	2	33	13	20	30	3	19	14	...
Kings.....	53	...	53	34	19	23	20	27	26	...
Lewis.....	14	3	17	6	11	16	1	11	6	...
Livingston.....	19	2	21	12	9	19	2	12	8	...
Madison.....	12	2	14	12	2	13	1	8	6	...
Monroe.....	24	6	30	15	15	20	10	16	14	...
Montgomery.....	14	1	15	4	11	14	1	11	4	...
New York.....	214	...	214	98	116	89	125	102	108	9
Niagara.....	9	3	12	4	8	7	5	7	5	...
Oneida.....	33	20	53	23	30	37	16	23	25	...
Onondaga.....	36	4	40	18	22	33	7	22	15	...
Ontario.....	33	1	34	13	21	34	5	21	18	...
Orange.....	31	2	33	16	17	32	1	16	16	1
Orleans.....	10	1	11	5	6	11	...	4	7	...
Oswego.....	27	3	30	19	11	23	7	21	9	...
Otsego.....	25	2	27	14	13	25	2	17	9	1
Putnam.....	7	...	7	4	3	7	...	3	4	...
Queens.....	4	2	6	5	1	6	...	3	1	2
Rensselaer.....	23	2	25	12	13	17	8	11	14	...
Richmond.....	2	...	2	2	...	1	1	...	2	...
Rockland.....	6	2	8	4	4	8	...	6	2	...
St. Lawrence.....	33	5	37	19	18	26	11	19	17	1
Saratoga.....	21	7	28	6	22	28	...	15	13	...
Schenectady.....	11	1	12	6	6	11	1	5	7	...
Schoharie.....	16	1	17	10	7	16	1	7	10	...
Schuyler.....	21	...	21	13	8	21	...	12	8	1
Seneca.....	8	1	9	6	3	8	1	4	5	...
Steuben.....	25	3	28	17	11	22	6	13	15	...
Suffolk.....	30	16	46	14	32	43	3	24	22	...
Sullivan.....	12	2	14	7	7	14	...	8	5	1
Tioga.....	9	...	9	4	5	9	...	3	6	...
Tompkins.....	16	2	18	9	9	18	...	4	14	...
Ulster.....	12	10	22	11	11	13	9	13	9	...
Warren.....	5	2	7	4	3	7	...	3	4	...
Washington.....	22	1	23	14	9	22	1	11	12	...
Wayne.....	23	4	27	16	16	23	4	13	19	...
Westchester.....	12	4	16	13	3	15	1	9	7	...
Wyoming.....	16	11	27	20	7	22	5	15	12	...
Yates.....	6	2	8	4	4	8	...	3	5	...
Total.....	1,264	218	1,582	762	820	1,212	370	823	730	25

* The population of the State of New York, by the United States census of 1870, was 4,282,759. This table shows the number of insane in the custody of friends, from reports of inquiries and investigations which extend to 2,947,394 of the population, and is estimated as to the remainder in the several counties respectively, on the basis of the returns referred to.

TABLE III.

Showing the Ages of 1,582 Insane of the State of New York, in the custody of friends, December 31, 1871, by counties.

COUNTIES.	Total.	Under 20 years.	20 years and less. than 30.	30 years and less than 40.	40 years and less than 50.	50 years and less than 60.	Over 60 years.	Not stated.
Albany	34	1	7	4	7	7	4	4
Allegany	28	4	4	6	6	2	3	3
Broome	16	...	5	4	2	1	4	...
Cattaraugus ..	58	...	8	14	12	6	11	7
Cayuga	20	...	...	6	7	2	3	2
Chautauqua ..	29	...	3	4	3	6	9	4
Chemung	18	...	3	2	3	4	3	1
Chenango	36	...	7	4	7	12	5	1
Clinton	8	...	1	4	...	...	1	2
Columbia	24	2	3	5	6	2	4	2
Cortland	15	...	...	5	1	3	3	...
Delaware	15	...	3	2	5	4	1	...
Dutchess	37	...	3	7	6	3	2	11
Erie	75	5	14	16	13	9	3	10
Essex	20	3	3	5	3	4	2	...
Franklin	8	1	1	3	1	1	...	1
Fulton	13	1	1	1	3	5	...	2
Genesee	19	...	...	3	5	7	3	1
Greene	15	...	2	...	4	3	6	...
Hamilton .....	...	...	...	...	...	...	...	...
Herkimer	30	...	3	6	5	4	5	7
Jefferson	33	1	3	9	4	13	2	1
Kings	53	1	9	18	5	10	3	2
Lewis	17	1	5	3	4	2	1	1
Livingston ..	21	...	2	1	9	5	4	...
Madison	14	1	3	2	3	1	4	...
Monroe	30	...	5	9	7	3	2	4
Montgomery ..	15	...	2	3	1	4	2	3
New York	214	14	62	55	33	21	9	15
Niagara	12	1	...	2	3	2	2	2
Oneida	53	...	6	7	5	9	3	13
Onondaga	40	...	5	11	7	4	6	7
Ontario	39	...	2	9	3	9	9	2
Orange	33	...	2	4	7	15	3	2
Orleans	11	...	1	...	1	4	5	...
Oswego	20	6	5	8	4	3	4	...
Otsego	27	...	2	7	3	3	6	1
Putnam	7	...	2	1	2	2	...	...
Queens	6	...	...	2	1	...	...	3
Rensselaer	25	5	7	9	2	2	...	...
Richmond	2	...	2	...	...	...	...	...
Rockland	8	...	...	1	1	3	2	1
St. Lawrence ..	37	3	2	7	9	3	5	3
Saratoga	23	2	5	4	3	4	6	4
Schenectady ..	12	1	1	2	2	6	...	...
Schoharie	17	...	2	5	3	6	1	...
Schuyler	21	...	3	6	3	4	...	...
Seneca	9	...	4	1	2	1	1	...
Steuben	23	1	1	6	3	5	6	1
Suffolk	46	...	2	5	13	7	6	13
Sullivan	14	...	3	5	1	2	...	3
Tioga	9	...	1	1	2	3	2	...
Tompkins	18	...	1	...	5	3	4	...
Ulster	22	...	3	4	6	5	...	4
Warren	7	...	3	1	1	...	2	...
Washington ..	23	...	2	3	7	5	2	4
Wayne	32	...	6	7	5	6	6	...
Westchester ..	16	...	...	3	3	2	3	3
Wyoming	27	2	3	4	9	5	...	4
Yates	8	...	...	3	2	1	2	...
Total	1,582	56	223	329	305	233	207	159

TABLE IV.

Showing the Duration of the Disease of 1,582 Insane of the State of New York, in the custody of friends, December 31, 1871, by counties.

COUNTIES.	Total.	Less than 1 year.	1 year and less than 5 years.	5 years and less than 10.	10 years and less than 20.	20 years and less than 30.	30 years and less than 40.	40 years and less than 50.	Over 50 years.	Not stated.
Albany	34	4	14	2	8	.....	.....	1	...	5
Allegany.....	28	11	10	1	2	1	.....	.....	.....	3
Broome.....	16	2	6	1	2	.....	.....	.....	.....	3
Cattaraugus.....	58	11	14	5	10	5	1	4	.....	8
Cayuga.....	20	2	6	.....	3	5	.....	.....	.....	4
Chautauqua.....	29	3	8	6	1	3	1	.....	.....	7
Chemung.....	18	2	3	2	1	2	.....	2	.....	6
Chenango.....	36	5	13	4	2	4	4	.....	.....	4
Clinton.....	8	1	5	.....	.....	1	.....	.....	.....	1
Columbia.....	24	1	4	.....	3	4	1	.....	.....	6
Cortland.....	15	2	4	2	.....	.....	.....	.....	.....	7
Delaware.....	15	1	7	2	.....	1	.....	1	.....	3
Dutchess.....	37	2	5	3	4	1	1	4	.....	17
Erie.....	75	23	18	11	10	6	2	1	.....	4
Essex.....	20	4	2	1	6	2	.....	.....	.....	5
Franklin.....	8	1	.....	1	3	2	.....	.....	.....	1
Fulton.....	13	3	3	.....	1	.....	1	1	.....	4
Genesee.....	19	4	2	3	3	1	.....	.....	.....	6
Greene.....	15	3	3	4	1	1	1	1	.....	1
Hamilton.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Herkimer.....	30	4	3	4	2	5	.....	.....	.....	12
Jefferson.....	33	3	14	3	3	3	1	.....	.....	6
Kings.....	53	7	26	5	7	3	.....	.....	.....	5
Lewis.....	17	2	1	3	5	.....	1	.....	.....	5
Livingston.....	21	2	7	3	3	1	1	2	.....	2
Madison.....	14	5	5	1	.....	.....	.....	.....	.....	3
Monroe.....	30	4	10	3	5	1	.....	.....	.....	7
Montgomery.....	15	1	3	1	.....	1	2	.....	.....	7
New York.....	214	82	98	10	7	8	.....	.....	.....	14
Niagara.....	12	1	1	2	5	.....	2	.....	.....	1
Oneida.....	53	13	2	3	4	3	12	.....	.....	16
Onondaga.....	40	5	7	2	6	2	2	1	.....	15
Ontario.....	39	5	14	3	4	3	.....	.....	.....	10
Orange.....	33	5	7	.....	3	5	1	.....	.....	7
Orleans.....	11	.....	2	1	2	1	1	1	.....	3
Oswego.....	30	3	10	7	1	.....	.....	.....	.....	9
Otsego.....	27	1	3	5	4	1	2	.....	.....	6
Putnam.....	7	1	3	.....	2	1	.....	.....	.....	.....
Queens.....	6	.....	.....	.....	.....	.....	.....	.....	.....	6
Rensselaer.....	25	6	4	1	2	2	1	.....	.....	9
Richmond.....	2	2	.....	.....	.....	.....	.....	.....	.....	.....
Rockland.....	8	.....	.....	1	1	3	1	.....	.....	2
St. Lawrence.....	37	7	8	5	4	2	2	1	1	7
Saratoga.....	28	.....	7	2	2	3	2	3	.....	9
Schenectady.....	12	1	5	.....	1	2	.....	1	.....	2
Schoharie.....	17	2	5	4	2	.....	.....	.....	.....	4
Schuyler.....	21	2	4	4	1	.....	.....	.....	.....	10
Seneca.....	9	.....	3	3	1	.....	.....	.....	.....	2
Steuken.....	23	2	4	5	3	2	2	.....	2	3
Suffolk.....	46	2	11	6	10	2	2	.....	.....	13
Sullivan.....	14	1	2	1	1	1	3	.....	.....	5
Tioga.....	9	2	1	.....	2	.....	1	.....	.....	3
Tompkins.....	18	5	3	1	1	4	.....	.....	.....	4
Ulster.....	22	2	3	1	2	2	1	.....	.....	11
Warren.....	7	2	1	1	.....	.....	.....	.....	.....	3
Washington.....	23	2	5	4	1	3	.....	.....	.....	3
Wayne.....	32	4	12	6	3	2	1	1	.....	2
Westchester.....	16	2	6	2	.....	.....	.....	.....	.....	6
Wyoming.....	27	3	7	2	9	3	2	.....	.....	1
Yates.....	8	1	3	.....	3	1	.....	.....	.....	.....
Total	1,582	277	442	153	187	104	55	25	3	226

TABLE V.

Showing the Sex, Nativity and Civil Condition of 1,093 Insane of the State of New York in the State Institutions, December 31, 1871, by counties.

COUNTIES.	Total.	Male.	Female.	Native.	Foreign.	Single.	Married.	Not stated.
Albany	105	34	71	45	60	53	49	4
Allegany.....	16	4	12	13	3	6	10	.....
Broome.....	19	5	14	14	5	9	8	2
Cattaraugus	4	3	1	3	1	3	1	.....
Cayuga	44	17	27	26	18	20	15	.....
Chautauqua .....	.....	.....	.....	.....	.....	.....	.....	.....
Chemung	20	12	8	13	7	10	8	2
Chenango.....	9	4	5	8	1	4	4	1
Clinton	20	7	13	14	6	8	11	1
Columbia	21	11	10	15	6	14	6	1
Cortland.....	4	1	3	3	1	2	1	1
Delaware	14	3	11	10	4	9	5	.....
Dutchess	56	24	32	32	24	25	18	2
Erie	8	4	4	5	3	5	3	.....
Essex.....	5	2	3	4	1	3	2	.....
Franklin.....	7	3	4	7	.....	4	3	.....
Fulton.....	17	2	15	17	.....	9	8	.....
Genesee	4	.....	4	1	3	2	2	.....
Greene	11	2	9	10	1	4	7	.....
Hamilton	2	2	.....	1	1	1	1	.....
Herkimer.....	35	15	20	20	15	22	13	.....
Jefferson	5	3	2	4	1	1	4	.....
Kings.....	.....	.....	.....	.....	.....	.....	.....	.....
Lewis	8	4	4	5	3	6	2	.....
Livingston.....	9	2	7	7	2	5	4	.....
Madison	19	1	18	17	2	12	7	.....
Monroe	14	9	5	8	6	4	10	.....
Montgomery.....	13	4	9	10	3	6	7	.....
New York	1	1	.....	1	.....	1	.....	.....
Niagara.....	44	13	31	26	18	20	17	7
Oneida	34	17	17	23	11	19	15	.....
Onondaga	10	6	4	8	2	5	5	.....
Ontario	41	17	24	19	22	26	13	2
Orange	30	14	16	18	12	17	13	.....
Orleans	9	1	8	6	3	6	3	.....
Oswego.....	16	9	7	10	6	8	8	.....
Otsego.....	24	10	14	22	2	7	16	1
Putnam.....	8	4	4	6	2	4	4	.....
Queens	11	5	6	5	6	6	5	.....
Rensselaer.....	23	8	20	6	22	17	9	2
Richmond	4	3	1	1	3	3	1	.....
Rockland	5	2	3	2	3	2	3	.....
St. Lawrence	40	19	21	26	14	18	22	.....
Saratoga	16	7	9	10	6	9	7	.....
Schenectady	10	5	5	7	3	6	4	.....
Schoharie.....	23	11	12	21	2	11	11	1
Schuyler.....	8	4	4	8	.....	7	1	.....
Seneca.....	13	9	9	13	5	13	4	1
Steuben	27	7	20	22	5	11	16	.....
Suffolk	11	6	5	8	3	4	7	.....
Sullivan	6	4	2	6	.....	2	4	.....
Tioga.....	5	4	1	4	1	3	2	.....
Tompkins	21	12	9	16	5	8	13	.....
Ulster	55	22	33	31	24	32	23	.....
Warren	3	1	2	3	.....	2	1	.....
Washington	15	2	13	10	5	5	9	1
Wayne	16	9	7	13	3	4	10	2
Westchester	52	24	28	20	32	24	28	.....
Wyoming.....	1	1	.....	1	.....	1	.....	.....
Yates.....	12	4	8	11	1	6	6	.....
Total	1,093	439	654	695	398	572	489	32

TABLE VI.

Showing the Ages of 1,093 Insane of the State of New York, in the State Institutions, December 31, 1871, by counties.

COUNTIES.	Total.	Under 20 years.	20 years and less than 30.	30 years and less than 40.	40 years and less than 50.	50 years and less than 60.	Over 60 years.	Not stated.
Albany	105	1	25	29	31	10	7	2
Allegheny	16	...	6	3	2	...	3	3
Broome	19	1	8	1	7	4	3	...
Cattaraugus	4	...	2	1	1	...	...	...
Cayuga	44	1	9	15	11	4	4	...
Chautauqua .....	...	...	...	...	...	...	...	...
Chemung	20	1	7	6	2	3	1	...
Chenango	9	...	1	3	2	2	...	1
Clinton	20	...	6	4	6	2	...	2
Columbia	21	...	...	8	6	5	1	1
Cortland	4	...	...	1	2	...	1	...
Delaware	14	...	4	1	3	4	2	...
Dutchess	56	1	9	19	9	10	5	3
Erie	8	...	3	2	1	2	...	...
Essex	5	...	2	1	1	...	1	...
Franklin	7	...	2	4	1	...	...	...
Fulton	17	1	2	6	3	3	2	...
Genesee	4	...	2	1	...	1	...	...
Greene	11	...	4	4	2	1	...	...
Hamilton	2	...	...	2	...	...	...	...
Herkimer	35	1	6	9	11	3	4	1
Jefferson	5	...	...	1	1	2	1	...
Kings .....	...	...	...	...	...	...	...	...
Lewis	8	1	3	2	1	...	1	...
Livingston	9	...	1	3	4	...	1	...
Madison	19	1	2	3	1	2	5	...
Monroe	14	...	2	5	4	2	...	1
Montgomery	13	1	2	4	3	2	1	...
New York	1	1	...	...	...	...	...	...
Niagara	44	1	4	14	10	5	6	4
Oneida	24	...	11	7	6	6	4	...
Onondaga	10	...	4	5	...	...	1	...
Ontario	41	1	4	8	14	8	3	3
Orange	30	2	6	13	3	6	...	...
Orleans	9	...	2	3	...	2	2	...
Oswego	16	2	3	7	3	1	...	...
Otsego	24	...	5	5	6	1	6	1
Putnam	8	1	1	2	2	1	1	...
Queens	11	...	6	3	1	...	1	...
Rensselaer	23	1	4	9	6	5	2	1
Richmond	4	...	1	...	...	3	...	...
Rockland	5	...	...	1	2	2	...	...
St. Lawrence	40	1	9	9	11	5	4	1
Saratoga	16	2	3	7	1	3	...	...
Schenectady	10	...	4	3	...	3	...	...
Schoharie	23	1	4	8	2	3	...	...
Schuyler	8	...	2	5	...	1	...	...
Seneca	18	...	3	1	3	5	...	1
Steuben	27	1	4	9	4	6	3	...
Suffolk	11	...	4	2	2	2	1	...
Sullivan	6	...	2	2	1	...	1	...
Tioga	5	...	2	...	2	...	1	...
Tompkins	21	1	5	4	2	5	4	...
Ulster	55	3	12	15	16	3	...	1
Warren	3	...	1	1	1	...	...	...
Washington	15	...	1	5	5	2	2	...
Wayne	16	1	1	4	4	2	2	2
Westchester	52	3	13	15	10	7	3	1
Wyoming	1	...	...	1	...	...	...	...
Yates	12	...	3	3	3	3	...	...
Total	1,093	32	227	313	240	162	90	29

TABLE VII.

Showing the Duration of the Disease of 1,093 Insane of the State of New York, in the State Institutions, December 31, 1871, by counties.

COUNTIES.	Total.	Less than 1 year.	1 year and less than 5 years.	5 years and less than 10.	10 years and less than 20.	20 years and less than 30.	30 years and less than 40.	40 years and less than 50.	Over 50 years.	Not stated.
Albany.....	103	19	29	7	8	6	2	1	....	33
Allegany.....	16	.....	10	1	2	.....	.....	.....	.....	3
Broome.....	19	2	4	3	3	2	.....	.....	.....	3
Cattaraugus.....	4	.....	1	.....	.....	1	.....	.....	.....	2
Cayuga.....	44	5	14	5	9	1	.....	.....	1	9
Chautauqua.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Chemung.....	20	2	3	3	2	.....	.....	1	.....	4
Chenango.....	9	2	3	.....	.....	2	.....	.....	.....	2
Clinton.....	20	5	10	2	1	2	.....	.....	.....	3
Columbia.....	21	1	6	3	5	3	.....	.....	.....	3
Cortland.....	4	.....	1	1	.....	.....	.....	.....	.....	2
Delaware.....	14	2	3	1	6	.....	.....	.....	.....	2
Dutchess.....	56	10	13	9	13	1	.....	.....	.....	10
Erie.....	8	.....	3	2	1	1	.....	.....	.....	1
Essex.....	5	1	3	1	.....	.....	.....	.....	.....	.....
Franklin.....	7	1	3	2	.....	.....	.....	.....	.....	1
Fulton.....	17	3	1	4	4	1	2	.....	.....	2
Genesee.....	4	.....	1	2	.....	.....	.....	.....	.....	1
Greene.....	11	.....	5	4	2	.....	.....	.....	.....	.....
Hamilton.....	2	.....	1	1	.....	.....	.....	.....	.....	.....
Herkimer.....	35	3	5	3	4	.....	.....	.....	.....	15
Jefferson.....	5	1	3	.....	1	.....	.....	.....	.....	.....
Kings.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Lewis.....	8	2	4	2	.....	.....	.....	.....	.....	.....
Livingston.....	9	4	2	2	1	.....	.....	.....	.....	.....
Madison.....	19	4	4	2	4	.....	1	.....	.....	4
Monroe.....	14	7	5	1	1	.....	.....	.....	.....	.....
Montgomery.....	13	3	4	3	2	.....	.....	.....	.....	1
New York.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....
Niagara.....	44	6	6	1	1	3	1	.....	.....	26
Oneida.....	34	11	12	3	4	3	1	.....	.....	.....
Onondaga.....	10	5	2	3	.....	.....	.....	.....	.....	.....
Ontario.....	41	2	8	12	4	3	2	.....	.....	10
Orange.....	20	7	7	3	1	1	1	.....	1	9
Orleans.....	9	.....	6	.....	1	1	.....	.....	.....	1
Oswego.....	16	6	5	2	3	.....	.....	.....	.....	.....
Otsego.....	24	3	12	3	3	1	1	.....	.....	1
Putnam.....	8	.....	4	2	.....	1	.....	.....	.....	1
Queens.....	11	.....	7	1	2	.....	.....	.....	.....	1
Rensselaer.....	23	4	4	5	6	.....	1	.....	.....	3
Richmond.....	4	.....	2	.....	1	.....	1	.....	.....	.....
Rockland.....	5	.....	2	1	1	1	.....	.....	.....	.....
St. Lawrence.....	40	7	13	6	1	2	.....	.....	.....	9
Saratoga.....	16	6	9	.....	1	.....	.....	.....	.....	.....
Schenectady.....	10	3	2	4	1	.....	.....	.....	.....	.....
Schoharie.....	23	3	9	3	.....	1	.....	.....	.....	2
Schuyler.....	8	1	4	1	.....	.....	.....	.....	.....	2
Seneca.....	18	2	5	2	6	1	.....	.....	.....	2
Stenben.....	27	7	7	7	6	.....	.....	.....	.....	.....
Suffolk.....	11	4	4	1	2	.....	.....	.....	.....	.....
Sullivan.....	6	1	4	1	.....	.....	.....	.....	.....	.....
Tioga.....	5	2	1	1	1	.....	.....	.....	.....	.....
Tompkins.....	21	7	6	4	3	1	.....	.....	.....	.....
Ulster.....	55	7	23	9	4	2	.....	.....	.....	5
Warren.....	3	.....	1	1	.....	.....	.....	.....	.....	1
Washington.....	15	3	4	3	1	1	.....	.....	.....	3
Wayne.....	16	3	6	2	2	1	.....	.....	.....	2
Westchester.....	52	19	13	7	3	1	.....	.....	.....	9
Wyoming.....	1	.....	1	.....	.....	.....	.....	.....	.....	.....
Yates.....	12	2	2	4	3	1	.....	.....	.....	.....
Total.....	1,093	204	343	165	130	45	13	2	2	190

TABLE VIII.

Showing the Sex, Nativity and Civil Condition of 312 Insane of the State of New York, in Private Institutions, December 31, 1871, by counties.

COUNTIES.	Total.	Male.	Female.	Native.	Foreign.	Single.	Married.	Not stated.
Albany	13	3	9	10	2	9	3	.....
Allegany	1	.....	1	1	.....	.....	1	.....
Broome	2	.....	2	2	.....	.....	2	.....
Cattaraugus .....	.....	.....	.....	.....	.....	.....	.....	.....
Cayuga	1	.....	1	1	.....	1	.....	.....
Chautauqua .....	.....	.....	.....	.....	.....	.....	.....	.....
Chemung	2	1	1	2	.....	.....	2	.....
Chenango .....	.....	.....	.....	.....	.....	.....	.....	.....
Clinton .....	.....	.....	.....	.....	.....	.....	.....	.....
Columbia	4	2	2	4	.....	3	1	.....
Cortland .....	.....	.....	.....	.....	.....	.....	.....	.....
Delaware	1	1	.....	1	.....	1	.....	.....
Dutchess .....	.....	.....	.....	.....	.....	.....	.....	.....
Erie	31	6	25	14	17	16	15	.....
Essex .....	.....	.....	.....	.....	.....	.....	.....	.....
Franklin .....	.....	.....	.....	.....	.....	.....	.....	.....
Fulton .....	.....	.....	.....	.....	.....	.....	.....	.....
Genesee	1	.....	1	1	.....	.....	1	.....
Greene .....	.....	.....	.....	.....	.....	.....	.....	.....
Hamilton .....	.....	.....	.....	.....	.....	.....	.....	.....
Herkimer .....	.....	.....	.....	.....	.....	.....	.....	.....
Jefferson .....	.....	.....	.....	.....	.....	.....	.....	.....
Kings	16	8	8	18	3	6	10	.....
Lewis .....	.....	.....	.....	.....	.....	.....	.....	.....
Livingston	1	.....	1	1	.....	.....	1	.....
Madison .....	.....	.....	.....	.....	.....	.....	.....	.....
Monroe	11	4	7	10	1	9	3	.....
Montgomery .....	.....	.....	.....	.....	.....	.....	.....	.....
New York	117	49	68	87	30	74	43	.....
Niagara .....	.....	.....	.....	.....	.....	.....	.....	.....
Onesida	1	.....	1	1	.....	1	.....	.....
Onondaga	1	.....	1	1	.....	1	.....	.....
Ontario	8	5	3	7	1	6	2	.....
Orange	1	1	.....	1	.....	1	.....	.....
Orleans .....	.....	.....	.....	.....	.....	.....	.....	.....
Oswego	1	.....	1	1	.....	1	.....	.....
Otsego .....	.....	.....	.....	.....	.....	.....	.....	.....
Putnam .....	.....	.....	.....	.....	.....	.....	.....	.....
Queens	3	1	2	3	.....	3	.....	.....
Rensselaer	75	31	44	40	35	49	26	.....
Richmond	3	.....	3	3	1	3	.....	.....
Rockland .....	.....	.....	.....	.....	.....	.....	.....	.....
St. Lawrence .....	.....	.....	.....	.....	.....	.....	.....	.....
Saratoga .....	.....	.....	.....	.....	.....	.....	.....	.....
Schenectady .....	.....	.....	.....	.....	.....	.....	.....	.....
Schoharie .....	.....	.....	.....	.....	.....	.....	.....	.....
Schuyler .....	.....	.....	.....	.....	.....	.....	.....	.....
Seneca	2	1	1	2	.....	2	.....	.....
Steuben .....	.....	.....	.....	.....	.....	.....	.....	.....
Suffolk	1	.....	1	1	.....	1	.....	.....
Sullivan .....	.....	.....	.....	.....	.....	.....	.....	.....
Tioga .....	.....	.....	.....	.....	.....	.....	.....	.....
Tompkins .....	.....	.....	.....	.....	.....	.....	.....	.....
Ulster	4	1	3	4	.....	3	2	.....
Warren	1	.....	1	1	.....	1	.....	.....
Washington	1	1	.....	1	.....	1	.....	.....
Wayne	2	2	.....	2	.....	2	.....	.....
Westchester	6	4	2	6	.....	4	2	.....
Wyoming .....	.....	.....	.....	.....	.....	.....	.....	.....
Yates	2	.....	2	2	.....	2	.....	.....
Total	312	121	191	222	90	199	113	.....

TABLE IX.

Showing the Ages of 312 Insane of the State of New York, in Private Institutions, December 31, 1871, by counties.

COUNTIES.	Total.	Under 20 years.	20 years and less than 30.	30 years and less than 40.	40 years and less than 50.	50 years and less than 60.	Over 60 years.	Not stated.
Albany	12	.....	3	3	2	1	3	.....
Allegany	1	.....	.....	1	.....	.....	.....	.....
Broome	2	.....	.....	.....	.....	2	.....	.....
Cattaraugus .....	.....	.....	.....	.....	.....	.....	.....	.....
Cayuga	1	.....	.....	.....	.....	.....	1	.....
Chautauqua .....	.....	.....	.....	.....	.....	.....	.....	.....
Chemung	2	.....	.....	1	1	.....	.....	.....
Chenango .....	.....	.....	.....	.....	.....	.....	.....	.....
Clinton .....	.....	.....	.....	.....	.....	.....	.....	.....
Columbia	4	.....	.....	.....	1	2	1	.....
Cortland .....	.....	.....	.....	.....	.....	.....	.....	.....
Delaware	1	.....	.....	.....	1	.....	.....	.....
Dutchess .....	.....	.....	.....	.....	.....	.....	.....	.....
Erie	31	3	6	2	14	4	2	.....
Essex .....	.....	.....	.....	.....	.....	.....	.....	.....
Franklin .....	.....	.....	.....	.....	.....	.....	.....	.....
Fulton .....	.....	.....	.....	.....	.....	.....	.....	.....
Genesee	1	.....	.....	.....	.....	.....	1	.....
Greene .....	.....	.....	.....	.....	.....	.....	.....	.....
Hamilton .....	.....	.....	.....	.....	.....	.....	.....	.....
Herkimer .....	.....	.....	.....	.....	.....	.....	.....	.....
Jefferson .....	.....	.....	.....	.....	.....	.....	.....	.....
Kings	16	.....	.....	3	4	7	2	.....
Lewis .....	.....	.....	.....	.....	.....	.....	.....	.....
Livingston	1	.....	.....	.....	1	.....	.....	.....
Madison .....	.....	.....	.....	.....	.....	.....	.....	.....
Monroe	11	.....	1	3	4	1	2	.....
Montgomery .....	.....	.....	.....	.....	.....	.....	.....	.....
New York	117	1	15	29	29	29	14	.....
Niagara .....	.....	.....	.....	.....	.....	.....	.....	.....
Oneida	1	.....	.....	.....	.....	.....	1	.....
Onondaga	1	.....	.....	.....	.....	1	.....	.....
Ontario	8	.....	1	2	3	2	.....	.....
Orange	1	.....	.....	.....	1	.....	.....	.....
Orleans .....	.....	.....	.....	.....	.....	.....	.....	.....
Oswego	1	.....	.....	.....	.....	1	.....	.....
Otsego .....	.....	.....	.....	.....	.....	.....	.....	.....
Putnam .....	.....	.....	.....	.....	.....	.....	.....	.....
Queens	3	.....	.....	.....	.....	3	.....	.....
Rensselaer	75	3	18	18	15	14	7	.....
Richmond	3	.....	.....	.....	1	2	.....	.....
Rockland .....	.....	.....	.....	.....	.....	.....	.....	.....
St. Lawrence .....	.....	.....	.....	.....	.....	.....	.....	.....
Saratoga .....	.....	.....	.....	.....	.....	.....	.....	.....
Schenectady .....	.....	.....	.....	.....	.....	.....	.....	.....
Schoharie .....	.....	.....	.....	.....	.....	.....	.....	.....
Schuyler .....	.....	.....	.....	.....	.....	.....	.....	.....
Seneca	2	.....	1	.....	.....	1	.....	.....
Stenben .....	.....	.....	.....	.....	.....	.....	.....	.....
Suffolk	1	.....	.....	.....	1	.....	.....	.....
Sullivan .....	.....	.....	.....	.....	.....	.....	.....	.....
Tioga .....	.....	.....	.....	.....	.....	.....	.....	.....
Tompkins .....	.....	.....	.....	.....	.....	.....	.....	.....
Ulster	4	.....	1	.....	.....	1	2	.....
Warren	1	.....	.....	.....	.....	1	.....	.....
Washington	1	.....	1	.....	.....	.....	.....	.....
Wayne	2	.....	2	.....	.....	.....	.....	.....
Westchester	6	.....	1	.....	3	2	.....	.....
Wyoming .....	.....	.....	.....	.....	.....	.....	.....	.....
Yates	2	.....	1	.....	.....	.....	1	.....
Total	312	7	51	62	81	74	37	.....

TABLE X.

Showing the Duration of the Disease of 312 Insane of the State of New York, in Private Institutions, December 31, 1871, by counties.

COUNTIES.	Total.	Less than 1 year.	1 year and less than 5.	5 years and less than 10.	10 years and less than 20.	20 years and less than 30.	30 years and less than 40.	40 years and less than 50.	Over 50 years.	Not stated.
Albany.....	19	....	5	1	2	1	..	..	..	3
Allegany.....	1	....	1	..	..	..	..	..	..	..
Broome.....	2	..	1	..	..	..	..	..	..	1
Cattaraugus.....	..	..	..	..	..	..	..	..	..	..
Cayuga.....	1	..	..	..	1	..	..	..	..	..
Chautauqua.....	..	..	..	..	..	..	..	..	..	..
Chemung.....	2	..	..	..	..	..	..	..	..	2
Chenango.....	..	..	..	..	..	..	..	..	..	..
Clinton.....	..	..	..	..	..	..	..	..	..	..
Columbia.....	4	..	..	..	1	..	..	..	..	3
Cortland.....	..	..	..	..	..	..	..	..	..	..
Delaware.....	1	..	..	..	1	..	..	..	..	..
Dutchess.....	..	..	..	..	..	..	..	..	..	..
Erie.....	81	6	9	7	9	..	..	..	..	..
Essex.....	..	..	..	..	..	..	..	..	..	..
Franklin.....	..	..	..	..	..	..	..	..	..	..
Fulton.....	..	..	..	..	..	..	..	..	..	..
Genesee.....	1	..	..	..	1	..	..	..	..	..
Greene.....	..	..	..	..	..	..	..	..	..	..
Hamilton.....	..	..	..	..	..	..	..	..	..	..
Herkimer.....	..	..	..	..	..	..	..	..	..	..
Jefferson.....	..	..	..	..	..	..	..	..	..	..
Kings.....	16	2	1	2	1	..	..	..	..	10
Lewis.....	..	..	..	..	..	..	..	..	..	..
Livingston.....	1	..	1	..	..	..	..	..	..	..
Madison.....	..	..	..	..	..	..	..	..	..	..
Monroe.....	11	2	5	2	2	..	..	..	..	..
Montgomery.....	..	..	..	..	..	..	..	..	..	..
New York.....	117	18	18	8	8	8	2	1	..	79
Niagara.....	..	..	..	..	..	..	..	..	..	..
Onelda.....	1	..	1	..	..	..	..	..	..	..
Onondaga.....	1	..	..	..	..	1	..	..	..	..
Ontario.....	8	1	3	2	2	..	..	..	..	..
Orange.....	1	..	..	..	..	..	..	..	..	1
Orleans.....	..	..	..	..	..	..	..	..	..	..
Oswego.....	1	..	..	..	..	1	..	..	..	..
Otsego.....	..	..	..	..	..	..	..	..	..	..
Putnam.....	..	..	..	..	..	..	..	..	..	..
Queens.....	8	1	1	..	..	..	..	..	..	1
Rensselaer.....	75	10	16	7	4	1	..	..	..	37
Richmond.....	3	..	..	..	..	..	..	..	..	3
Rockland.....	..	..	..	..	..	..	..	..	..	..
St. Lawrence.....	..	..	..	..	..	..	..	..	..	..
Saratoga.....	..	..	..	..	..	..	..	..	..	..
Schenectady.....	..	..	..	..	..	..	..	..	..	..
Schoharie.....	..	..	..	..	..	..	..	..	..	..
Schuyler.....	..	..	..	..	..	..	..	..	..	..
Seneca.....	2	1	..	..	1	..	..	..	..	..
Steuben.....	..	..	..	..	..	..	..	..	..	..
Suffolk.....	1	..	..	..	..	..	..	..	..	1
Sullivan.....	..	..	..	..	..	..	..	..	..	..
Tioga.....	..	..	..	..	..	..	..	..	..	..
Tompkins.....	..	..	..	..	..	..	..	..	..	..
Ulster.....	4	..	..	..	..	..	..	..	..	4
Warren.....	1	..	..	1	..	..	..	..	..	..
Washington.....	1	..	..	..	..	..	..	..	..	1
Wayne.....	2	1	1	..	..	..	..	..	..	..
Westchester.....	6	..	..	..	..	..	..	..	..	6
Wyoming.....	..	..	..	..	..	..	..	..	..	..
Yates.....	2	..	1	..	..	1	..	..	..	..
Total.....	312	37	59	25	23	8	2	1	..	152

TABLE XI.

Showing the Sex, Nativity and Civil Condition of 2,233 Insane of the State of York in the City Asylums and City Alms-houses, December 31, 1871, by counties.

COUNTIES.	Total.	Male.	Female.	Native.	Foreign.	Single.	Married.	Not stated.
Albany								
Allegany								
Broome								
Cattaraugus								
Cayuga								
Chautauqua								
Chemung								
Chenango								
Clinton								
Columbia								
Cortland								
Delaware								
Dutchess	20	8	12	14	6	9	11	
Erie								
Essex								
Franklin								
Fulton								
Genesee								
Greene								
Hamilton								
Herkimer								
Jefferson								
Kings	684	267	417	216	468	349	335	
Lewis								
Livingston								
Madison								
Monroe	116	46	70	39	77	65	51	
Montgomery								
New York	1 393	510	883	243	1,150	854	498	39
Niagara								
Oneida								
Onondaga								
Ontario								
Orange	13	6	7	9	4	8	5	
Orleans								
Oswego	7	4	3	5	2	5	2	
Otsego								
Putnam								
Queens								
Rensselaer								
Richmond								
Rockland								
St. Lawrence								
Saratoga								
Schenectady								
Schoharie								
Schuyler								
Seneca								
Steuben								
Suffolk								
Sullivan								
Tioga								
Tompkins								
Ulster								
Warren								
Washington								
Wayne								
Westchester								
Wyoming								
Yates								
Total	2,233	841	1,392	536	1,707	1,293	903	39

TABLE XII.

Showing the Ages of 2,233 Insane of the State of New York, in the City Asylums and City Alms-houses, December 31, 1871, by counties.

COUNTIES.	Total.	Under 20 years.	20 years and less than 30.	30 years and less than 40.	40 years and less than 50.	50 years and less than 60.	Over 60 years.	Not stated.
Albany
Allegany
Broome
Cattaraugus
Cayuga
Chautauqua
Chemung
Chenango
Clinton
Columbia
Cortland
Delaware
Dutchess	20	.....	.....	5	4	6	8	2
Erie
Essex
Franklin
Fulton
Genesee
Greene
Hamilton
Herkimer
Jefferson
Kings	694	22	189	211	177	86	49	.....
Lewis
Livingston
Madison
Monroe	116	4	9	87	83	22	12	.....
Montgomery
New York	1,393	16	307	444	362	161	63	40
Niagara
Oneida
Onondaga
Ontario
Orange	18	.....	1	1	9	2	.....	.....
Orleans
Oswego	7	1	1	3	.....	2	.....	.....
Otsego
Putnam
Queens
Rensselaer
Richmond
Rockland
St. Lawrence
Saratoga
Schenectady
Schoharie
Schuyler
Seneca
Stauben
Suffolk
Sullivan
Tioga
Tompkins
Ulster
Warren
Washington
Wayne
Westchester
Wyoming
Yates
Total	2,233	43	457	701	584	279	127	42

TABLE XIII.

Showing the Duration of the Disease of 2,233 Insane of the State of New York in the City Asylums and City Alms-houses, December 31, 1871, by counties.

COUNTIES.	Total.	Less than 1 year.	1 year and less than 5 years.	5 years and less than 10.	10 years and less than 20.	20 years and less than 30.	30 years and less than 40.	40 years and less than 50.	Over 50 years.	Not stated.
Albany.....
Allegany.....
Broome.....
Cattaraugus.....
Cayuga.....
Chautauqua.....
Chemung.....
Chenango.....
Ciinton.....
Columbia.....
Cortland.....
Delaware.....
Dutchess.....	20	1	8	4	.....	.....	1	.....	.....	11
Erie.....
Essex.....
Franklin.....
Fulton.....
Genesee.....
Greene.....
Hamilton.....
Herkimer.....
Jefferson.....
Kings.....	684	165	258	150	102	8	1	.....	.....	.....
Lewis.....
Livingston.....
Madison.....
Monroe.....	116	5	48	28	32	6	1	.....	1	.....
Montgomery.....
New York.....	1,393	370	630	227	183	30	2	1	.....	.....
Niagara.....
Oneida.....
Onondaga.....
Ontario.....
Orange.....	18	.....	1	.....	.....	.....	.....	.....	.....	12
Orleans.....
Oswego.....	7	.....	1	1	.....	.....	.....	.....	.....	5
Otsego.....
Putnam.....
Queens.....
Rensselaer.....
Richmond.....
Rockland.....
St. Lawrence.....
Saratoga.....
Schenectady.....
Schoharie.....
Schuyler.....
Seneca.....
Steuken.....
Suffolk.....
Sullivan.....
Tioga.....
Tompkins.....
Ulster.....
Warren.....
Washington.....
Wayne.....
Westchester.....
Wyoming.....
Yates.....
Total....	2,233	541	936	410	297	44	5	1	1	22

TABLE XIV.

Showing the Sex, Nativity and Civil Condition of 1,319 Insane of the State of New York, in the County Asylums and County Poor-houses, December 31, 1871, by counties.

COUNTIES	Total.	Male.	Female.	Native.	Foreign.	Single.	Married.	Not stated.
Albany	66	39	27	14	52	15	6	45
Allegany	10	4	6	6	4	5	1	4
Broome	11	3	8	10	1	5	6	.....
Cattaraugus	30	16	14	21	9	15	15	.....
Cayuga	23	13	10	12	11	13	9	1
Chautauqua	50	18	32	39	11	18	23	4
Chemung	7	2	5	5	2	2	5	.....
Chenango	16	8	8	11	5	12	4	.....
Clinton	2	1	1	1	1	.....	2	.....
Columbia	31	8	13	14	7	.....	.....	21
Cortland	10	7	3	9	1	6	4	.....
Delaware	8	3	5	6	2	6	2	.....
Dutchess	22	10	12	9	13	17	5	.....
Erie	133	56	77	33	25	3	.....	129
Essex	14	9	5	11	3	10	4	.....
Franklin	9	6	3	2	7	4	3	2
Fulton	7	3	4	7	.....	7	.....	.....
Genesee	21	9	12	11	10	18	3	.....
Greene	21	7	14	16	5	8	8	5
Hamilton .....	.....	.....	.....	.....	.....	.....	.....	.....
Herkimer	20	9	11	8	12	.....	.....	20
Jefferson	68	26	42	45	23	41	27	.....
Kings .....	.....	.....	.....	.....	.....	.....	.....	.....
Lewis	16	7	9	15	1	5	11	.....
Livingston	31	17	14	19	12	19	12	.....
Madison	24	11	13	14	10	.....	.....	24
Monroe	34	15	19	14	20	23	6	.....
Montgomery	21	14	7	12	9	12	7	2
New York .....	.....	.....	.....	.....	.....	.....	.....	.....
Niagara	16	10	6	5	11	6	10	.....
Oneida	132	45	87	71	61	63	49	.....
Onondaga	80	28	52	32	48	41	33	1
Ontario	8	6	2	3	5	7	1	.....
Orange	16	7	9	15	1	7	9	.....
Orleans	7	3	4	4	3	3	4	.....
Oswego	32	17	15	20	12	14	18	.....
Otsego	17	10	7	15	2	10	7	.....
Putnam	8	1	2	2	1	3	.....	.....
Queens	13	11	2	1	12	10	3	.....
Rensselaer	41	16	25	20	21	16	25	.....
Richmond	4	2	2	1	3	3	1	.....
Rockland	5	1	4	1	4	3	2	.....
St. Lawrence	18	9	9	9	9	8	10	.....
Saratoga	29	12	17	19	10	16	13	.....
Schenectady	18	9	9	12	6	12	6	.....
Schoharie	5	2	3	5	.....	3	2	.....
Schuyler .....	.....	.....	.....	.....	.....	.....	.....	.....
Seneca	4	4	.....	3	1	3	1	.....
Steuben	13	4	9	10	3	9	4	.....
Suffolk	6	4	2	5	1	6	.....	.....
Sullivan	26	5	21	13	13	9	17	.....
Tioga	11	5	6	7	4	9	2	.....
Tompkins	5	5	.....	3	2	2	3	.....
Ulster	9	4	5	4	5	6	3	.....
Warren	4	2	2	2	2	.....	2	2
Washington	33	15	23	24	14	16	23	.....
Wayne	19	9	10	14	5	9	10	.....
Westchester	21	13	8	7	14	19	1	1
Wyoming	21	8	13	13	8	8	12	1
Yates	3	.....	3	3	.....	3	.....	.....
Total	1,319	568	731	712	607	613	443	263

TABLE XV.

Showing the Ages of 1,319 Insane of the State of New York, in the County Asylums and County Poor-houses, December 31, 1871, by counties.

COUNTIES.	Total.	Under 20 years.	20 years and less than 30 years.	30 years and less than 40.	40 years and less than 50.	50 years and less than 60.	Over 60 years.	Not stated.
Albany	66	.....	12	17	19	14	1	3
Allegany	10	.....	1	1	4	1	3	.....
Broome	11	.....	.....	1	3	2	5	.....
Cattaraugus	30	1	.....	10	8	8	6	.....
Cayuga	23	.....	1	2	3	6	5	1
Chautauqua	50	3	5	12	12	7	8	3
Chemung	7	.....	.....	1	2	4	.....	.....
Chenango	16	.....	1	3	6	3	3	.....
Clinton	2	.....	1	.....	.....	1	.....	.....
Columbia	21	.....	.....	.....	.....	.....	.....	21
Cortland	10	.....	.....	3	4	3	.....	.....
Delaware	8	.....	1	.....	2	3	1	1
Dutchess	22	.....	7	10	2	3	.....	.....
Erie	133	2	26	26	40	26	9	4
Essex	14	.....	.....	2	6	4	2	.....
Franklin	9	.....	.....	2	3	.....	4	.....
Fulton	7	.....	2	2	1	2	.....	.....
Genesee	21	.....	4	4	5	5	3	.....
Greene	21	.....	3	3	2	4	3	6
Hamilton .....	.....	.....	.....	.....	.....	.....	.....	.....
Herkimer	20	.....	.....	.....	.....	.....	.....	20
Jefferson	68	.....	7	15	11	16	9	10
Kings .....	.....	.....	.....	.....	.....	.....	.....	.....
Lewis	16	.....	.....	7	3	3	1	2
Livingston	31	.....	.....	7	10	5	9	.....
Madison	24	.....	.....	.....	.....	.....	.....	24
Monroe	34	1	4	4	7	7	11	.....
Montgomery	21	3	2	3	7	2	4	.....
New York .....	.....	.....	.....	.....	.....	.....	.....	.....
Niagara	16	.....	1	6	4	4	1	.....
Oneida	133	.....	9	28	42	34	19	.....
Onondaga	80	1	7	20	23	17	13	.....
Ontario	8	.....	.....	.....	1	4	3	.....
Orange	16	.....	.....	5	4	5	2	.....
Orleans	7	.....	.....	1	2	3	.....	1
Oswego	22	.....	7	7	5	8	5	.....
Otsego	17	.....	3	3	3	6	2	.....
Putnam	3	.....	.....	.....	.....	2	1	.....
Queens	13	.....	2	2	6	3	.....	.....
Rensselaer	41	1	5	7	9	14	5	.....
Richmond	4	.....	.....	1	1	1	1	.....
Rockland	5	.....	.....	1	2	1	1	.....
St. Lawrence	18	.....	.....	3	2	6	5	.....
Saratoga	20	1	5	7	1	5	10	.....
Schenectady	18	.....	3	2	5	5	1	2
Schoharie	5	.....	.....	2	.....	3	.....	.....
Schuyler .....	.....	.....	.....	.....	.....	.....	.....	.....
Seneca	4	.....	1	.....	2	.....	1	.....
Steuben	13	.....	1	2	2	6	2	.....
Suffolk	6	.....	2	2	1	.....	1	.....
Sullivan	23	.....	3	9	5	4	5	.....
Tioga	11	1	1	2	5	1	1	.....
Tompkins	5	.....	.....	1	.....	2	2	.....
Ulster	9	1	1	2	2	1	2	.....
Warren	4	.....	.....	.....	1	2	1	.....
Washington	23	1	2	9	5	9	12	.....
Wayne	19	.....	3	4	6	5	1	.....
Westchester	21	1	4	4	6	1	5	.....
Wyoming	21	.....	1	2	3	7	7	1
Yates	3	.....	.....	.....	.....	2	1	.....
Total	1,319	17	133	267	309	293	197	99

TABLE XVI.

Showing the Duration of the Disease of 1,319 Insane of the State of New York, in the County Asylums and County Poor-houses, December 31, 1871, by counties.

COUNTIES.	Total.	Less than 1 year.	1 year and less than 5 years.	5 years and less than 10.	10 years and less than 20.	20 years and less than 30.	30 years and less than 40.	40 years and less than 50.	Over 50 years.	Not stated.
Albany.....	66	...	...	...	...	...	...	...	...	66
Allegany	10	...	...	...	...	1	...	...	...	9
Broome	11	...	2	...	...	6	2	...	...	1
Cattaraugus.....	30	...	6	7	10	4	2	...	...	1
Cayuga.....	23	...	1	...	...	...	...	...	...	22
Chautauqua.....	50	...	...	...	...	...	...	...	...	50
Chemung	7	2	1	1	...	...	...	...	...	3
Chenango	16	...	...	...	...	...	...	...	...	16
Clinton	2	...	...	...	1	...	...	...	...	1
Columbia	31	...	...	...	...	...	...	...	...	21
Cortland	10	...	2	...	4	...	...	...	...	3
Delaware.....	8	...	...	...	...	...	...	...	...	8
Dutchess.....	22	1	2	1	...	...	...	...	...	18
Erie.....	133	...	...	...	...	...	...	...	...	133
Essex.....	14	...	2	1	...	...	...	...	...	11
Franklin	9	...	...	...	...	...	...	...	...	9
Fulton	7	...	...	...	...	...	...	...	...	7
Genesee.....	21	...	7	4	4	2	...	...	...	4
Greene.....	21	3	...	6	3	1	1	1	...	6
Hamilton .....	...	...	...	...	...	...	...	...	...	...
Herkimer	20	...	...	...	...	...	...	...	...	20
Jefferson.....	68	1	5	14	4	4	1	2	...	37
Kings.....	...	...	...	...	...	...	...	...	...	...
Lewis.....	16	...	11	4	1	...	...	...	...	...
Livingston.....	31	3	5	11	10	1	1	...	...	...
Madison.....	24	...	...	...	...	...	...	...	...	24
Monroe.....	24	...	1	1	...	...	...	...	...	22
Montgomery	21	...	...	...	...	...	...	...	...	21
New York.....	...	...	...	...	...	...	...	...	...	...
Niagara.....	16	1	3	5	1	...	...	...	...	6
Oneida.....	132	3	18	29	53	13	3	...	...	...
Onondaga.....	80	...	23	18	19	8	2	...	...	...
Ontario.....	8	...	...	...	...	...	...	...	...	8
Orange.....	16	2	...	...	...	...	...	...	...	14
Orleans.....	7	1	2	...	2	2	...	...	...	...
Oswego.....	32	2	13	2	1	...	...	...	...	14
Otsego.....	17	...	3	3	4	2	...	...	...	...
Putnam.....	3	...	...	...	...	...	...	...	...	3
Queens.....	12	...	2	...	...	...	...	...	...	11
Rensselaer.....	41	...	...	...	...	...	...	...	...	41
Richmond.....	4	...	2	...	...	...	...	...	...	2
Rockland.....	5	...	...	3	1	...	...	1	...	...
St. Lawrence.....	18	...	...	...	...	...	...	...	...	18
Saratoga.....	29	...	...	...	...	...	...	...	...	29
Schenectady	13	1	1	7	6	3	...	...	...	...
Schoharie.....	5	...	...	...	...	...	...	...	...	5
Schuyler.....	...	...	...	...	...	...	...	...	...	...
Seneca.....	4	...	2	...	...	...	...	...	...	2
Steuben.....	13	...	5	2	4	2	...	...	...	...
Suffolk.....	6	1	...	1	1	...	...	...	...	3
Sullivan.....	26	1	2	2	1	...	...	...	...	20
Tioga.....	11	...	6	...	...	...	...	...	...	5
Tompkins.....	5	...	1	1	...	1	...	...	...	2
Ulster.....	9	...	2	1	3	2	...	...	...	1
Warren.....	4	...	...	...	...	...	...	...	...	4
Washington.....	36	...	1	...	...	...	...	...	...	37
Wayne.....	19	...	...	...	...	...	...	...	...	19
Westchester.....	21	2	1	...	3	...	...	1	...	14
Wyoming.....	21	...	1	...	...	...	...	...	...	20
Yates.....	3	...	...	...	...	1	...	...	...	2
Total.....	1,319	24	144	139	139	53	12	5	...	203

TABLE XVII.

Showing the Sex, Nativity and Civil Condition of 161 Insane of the State of New York, in Institutions of other States, December 31, 1871, by counties.

COUNTIES.	Total.	Male.	Female.	Native.	Foreign.	Single.	Married.	Not stated.
Albany	4	3	1	3	1	...	...	4
Allegany	2	1	1	1	1	...	...	2
Broome .....	...	...	...	...	...	...	...	...
Cattaraugus	1	1	...	1	...	...	...	1
Cayuga .....	...	...	...	...	...	...	...	...
Chautauqua .....	...	...	...	...	...	...	...	...
Chemung .....	...	...	...	...	...	...	...	...
Chenango .....	...	...	...	...	...	...	...	...
Clinton	3	2	1	3	1	...	...	3
Columbia	4	3	1	4	...	...	...	4
Cortland	1	...	1	1	...	...	...	1
Delaware .....	...	...	...	...	...	...	...	...
Dutchess	7	3	4	7	...	1	1	5
Erie .....	...	...	...	...	...	...	...	...
Essex .....	...	...	...	...	...	...	...	...
Franklin	1	...	1	1	...	...	...	1
Fulton .....	...	...	...	...	...	...	...	...
Genesee .....	...	...	...	...	...	...	...	...
Greene	1	...	1	1	...	...	...	1
Hamilton .....	...	...	...	...	...	...	...	...
Herkimer	1	...	1	1	...	...	...	1
Jefferson	1	...	1	...	1	...	...	1
Kings	10	3	7	9	1	7	3	...
Lewis .....	...	...	...	...	...	...	...	...
Livingston .....	...	...	...	...	...	...	...	...
Madison .....	...	...	...	...	...	...	...	...
Monroe	2	1	1	1	1	1	...	1
Montgomery .....	...	...	...	...	...	...	...	...
New York	42	24	18	40	2	29	5	8
Niagara	1	...	1	1	...	1	...	...
Oneida	4	2	2	3	1	1	1	2
Onondaga .....	...	...	...	...	...	...	...	...
Ontario	1	...	1	1	...	1	...	...
Orange	12	6	6	11	1	1	...	11
Orleans .....	...	...	...	...	...	...	...	...
Oswego .....	...	...	...	...	...	...	...	...
Otsego .....	...	...	...	...	...	...	...	...
Putnam	3	2	1	3	...	...	...	3
Queens	3	1	2	2	1	...	...	3
Rensselaer	5	2	3	4	1	2	1	2
Richmond	9	7	2	8	1	1	2	6
Rockland .....	...	...	...	...	...	...	...	...
St. Lawrence	6	3	3	5	1	...	...	6
Saratoga	1	...	1	...	1	...	...	1
Schenectady	4	3	1	4	...	2	...	2
Schoharie .....	...	...	...	...	...	...	...	...
Schuyler .....	...	...	...	...	...	...	...	...
Seneca .....	...	...	...	...	...	...	...	...
Stenben .....	...	...	...	...	...	...	...	...
Suffolk	17	13	4	15	2	...	1	16
Sullivan .....	...	...	...	...	...	...	...	...
Tioga .....	...	...	...	...	...	...	...	...
Tompkins .....	...	...	...	...	...	...	...	...
Ulster	4	...	4	4	...	...	1	3
Warren	1	...	1	1	...	1	...	...
Washington	1	1	...	1	...	...	...	1
Wayne	3	2	1	3	...	...	...	3
Westchester	5	3	2	4	1	1	1	3
Wyoming .....	...	...	...	...	...	...	...	...
Yates	1	...	1	1	...	...	...	1
Total	161	86	75	143	18	49	16	96

TABLE XVIII.

Showing the Ages of 161 Insane of the State of New York, in Institutions of other States, December 31, 1871, by counties.

COUNTIES.	Total.	Under 20 years.	20 years and less than 30.	30 years and less than 40.	40 years and less than 50.	50 years and less than 60.	Over 60 years.	Not stated.
Albany	4	...	...	2	...	1	1	...
Allegany	2	...	...	1	...	...	1	...
Broome .....	...	...	...	...	...	...	...	...
Cattaraugus	1	...	...	...	...	...	1	...
Cayuga .....	...	...	...	...	...	...	...	...
Chautauqua .....	...	...	...	...	...	...	...	...
Chemung .....	...	...	...	...	...	...	...	...
Chenango .....	...	...	...	...	...	...	...	...
Clinton	3	...	...	...	1	1	1	...
Columbia	4	...	...	...	1	2	1	...
Cortland	1	...	...	...	...	1	...	...
Delaware .....	...	...	...	...	...	...	...	...
Dutchess	7	...	1	1	4	1	...	...
Erie .....	...	...	...	...	...	...	...	...
Essex .....	...	...	...	...	...	...	...	...
Franklin	1	...	...	...	...	...	1	...
Fulton .....	...	...	...	...	...	...	...	...
Genesee .....	...	...	...	...	...	...	...	...
Greene	1	...	...	...	1	...	...	...
Hamilton .....	...	...	...	...	...	...	...	...
Herkimer	1	...	...	...	1	...	...	...
Jefferson	1	...	...	...	1	...	...	...
Kings	10	...	...	6	2	1	1	...
Lewis .....	...	...	...	...	...	...	...	...
Livingston .....	...	...	...	...	...	...	...	...
Madison .....	...	...	...	...	...	...	...	...
Monroe	2	...	...	1	1	...	...	...
Montgomery .....	...	...	...	...	...	...	...	...
New York	42	2	7	11	9	9	4	...
Niagara	1	...	...	...	...	...	1	...
Oneida	4	...	...	...	1	2	1	...
Onondaga .....	...	...	...	...	...	...	...	...
Ontario	1	...	...	...	1	...	...	...
Orange	12	...	1	1	4	4	2	...
Orleans .....	...	...	...	...	...	...	...	...
Oswego .....	...	...	...	...	...	...	...	...
Otsego .....	...	...	...	...	...	...	...	...
Putnam	3	...	...	1	1	1	...	...
Queens	3	...	...	...	1	...	2	...
Rensselaer	5	...	2	1	1	1	...	...
Richmond	9	...	1	2	1	2	2	1
Rockland .....	...	...	...	...	...	...	...	...
St. Lawrence	6	...	1	...	2	2	...	...
Saratoga	1	...	...	...	...	...	1	...
Schenectady	4	...	...	1	...	2	...	...
Schoharie .....	...	...	...	...	...	...	...	...
Schuyler .....	...	...	...	...	...	...	...	...
Seneca .....	...	...	...	...	...	...	...	...
Stenben .....	...	...	...	...	...	...	...	...
Suffolk	17	...	1	...	3	6	4	3
Sullivan .....	...	...	...	...	...	...	...	...
Tioga .....	...	...	...	...	...	...	...	...
Tompkins .....	...	...	...	...	...	...	...	...
Ulster	4	...	...	...	1	1	2	...
Warren	1	...	...	...	1	...	...	...
Washington	1	...	...	...	...	1	...	...
Wayne	3	...	...	...	1	1	1	...
Westchester	5	...	2	...	1	1	...	1
Wyoming .....	...	...	...	...	...	...	...	...
Yates	1	...	...	...	...	...	1	...
Total	161	2	16	23	40	42	23	5

TABLE XIX.

Showing the Duration of the Disease of 161 Insane of the State of New York, in Institutions of other States, December 31, 1871, by counties.

COUNTIES.	Total.	Less than 1 year.	1 year and less than 5 years.	5 years and less than 10.	10 years and less than 20.	20 years and less than 30.	30 years and less than 40.	40 years and less than 50.	Over 50 years.	Not stated.
Albany.....	4	...	1	2	1	...	...	...	..	..
Allegany	2	...	1	...	...	1	...	...	..	..
Broome .....	...	...	...	...	...	...	...	...	..	..
Cattaraugus.	1	...	...	...	...	1	...	...	..	..
Cayuga.....	...	...	...	...	...	...	...	...	..	..
Chautauqua.....	...	...	...	...	...	...	...	...	..	..
Chemung .....	...	...	...	...	...	...	...	...	..	..
Chenango .....	...	...	...	...	...	...	...	...	..	..
Clinton	3	...	...	1	2	...	...	...	..	..
Columbia	4	...	1	...	2	1	...	...	..	..
Cortland	1	...	...	...	...	1	...	...	..	..
Delaware.....	...	...	...	...	...	...	...	...	..	..
Dutchess	7	1	1	1	2	2	...	...	..	..
Erie.....	...	...	...	...	...	...	...	...	..	..
Essex .....	...	...	...	...	...	...	...	...	..	..
Franklin	1	...	...	...	1	...	...	...	..	..
Fulton .....	...	...	...	...	...	...	...	...	..	..
Genesee.....	...	...	...	...	...	...	...	...	..	..
Greene	1	...	1	...	...	...	...	...	..	..
Hamilton .....	...	...	...	...	...	...	...	...	..	..
Herkimer	1	...	1	...	...	...	...	...	..	..
Jefferson	1	...	...	...	1	...	...	...	..	..
Kings	10	...	1	...	5	1	...	...	..	2
Lewis .....	...	...	...	...	...	...	...	...	..	..
Livingston .....	...	...	...	...	...	...	...	...	..	..
Madison .....	...	...	...	...	...	...	...	...	..	..
Monroe	2	...	...	...	2	...	...	...	..	..
Montgomery .....	...	...	...	...	...	...	...	...	..	..
New York	42	3	9	8	13	5	1	...	..	2
Niagara.....	1	...	...	...	1	...	...	...	..	..
Oneida	4	...	1	...	2	...	...	1	..	..
Onondaga .....	...	...	...	...	...	...	...	...	..	..
Ontario	1	...	...	...	...	1	...	...	..	..
Orange.....	12	1	3	4	4	...	...	...	..	..
Orleans .....	...	...	...	...	...	...	...	...	..	..
Oswego .....	...	...	...	...	...	...	...	...	..	..
Otsego .....	...	...	...	...	...	...	...	...	..	..
Putnam	3	...	1	1	1	...	...	...	..	..
Queens.....	3	...	1	1	1	...	...	...	..	..
Rensselaer	5	...	2	...	2	1	...	...	..	..
Richmond... ..	9	1	3	2	...	1	...	...	..	2
Rockland .....	...	...	...	...	...	...	...	...	..	..
St. Lawrence.....	6	2	1	2	1	...	...	...	..	..
Saratoga	1	...	...	...	1	...	...	...	..	..
Schenectady	4	...	...	...	2	...	...	...	..	2
Schoharie .....	...	...	...	...	...	...	...	...	..	..
Schuyler .....	...	...	...	...	...	...	...	...	..	..
Seneca .....	...	...	...	...	...	...	...	...	..	..
Stenben.....	...	...	...	...	...	...	...	...	..	..
Suffolk	17	3	4	7	3	...	...	...	..	..
Sullivan .....	...	...	...	...	...	...	...	...	..	..
Tioga .....	...	...	...	...	...	...	...	...	..	..
Tompkins.....	...	...	...	...	...	...	...	...	..	..
Ulster.....	4	...	2	...	2	...	...	...	..	..
Warren	1	...	...	1	...	...	...	...	..	..
Washington.....	1	...	...	...	1	...	...	...	..	..
Wayne	3	1	...	...	2	...	...	...	..	..
Westchester	5	...	3	...	2	...	...	...	..	..
Wyoming .....	...	...	...	...	...	...	...	...	..	..
Yates	1	...	...	...	...	1	...	...	..	..
Total.....	161	12	37	30	54	16	1	1	..	16

TABLE XX.

Showing the Sex, Nativity and Civil Condition of 75 Criminal Insane of the State of New York, in the Asylum for Insane Criminals, December 31, 1871, by counties.

COUNTIES.	Total.	Male.	Female.	Native.	Foreign.	Single.	Married.	Not stated.
Albany	2	2	.....	1	1	2	.....	.....
Allegany .....	.....	.....	.....	.....	.....	.....	.....	.....
Broome .....	.....	.....	.....	.....	.....	.....	.....	.....
Cattaraugus	2	2	.....	1	1	1	1	.....
Cayuga	1	1	.....	1	.....	.....	1	.....
Chautauqua .....	.....	.....	.....	.....	.....	.....	.....	.....
Chemung .....	.....	.....	.....	.....	.....	.....	.....	.....
Chenango .....	.....	.....	.....	.....	.....	.....	.....	.....
Clinton	1	1	.....	.....	1	1	.....	.....
Columbia	3	2	1	2	1	1	2	.....
Cortland	1	1	.....	1	.....	1	.....	.....
Delaware .....	.....	.....	.....	.....	.....	.....	.....	.....
Dutchess	2	2	.....	1	1	2	.....	.....
Erie	3	2	1	.....	3	2	1	.....
Essex .....	.....	.....	.....	.....	.....	.....	.....	.....
Franklin	1	1	.....	1	.....	1	.....	.....
Fulton	1	1	.....	1	.....	1	.....	.....
Genesee	2	2	.....	1	1	1	1	.....
Greene .....	.....	.....	.....	.....	.....	.....	.....	.....
Hamilton .....	.....	.....	.....	.....	.....	.....	.....	.....
Herkimer	1	1	.....	1	.....	1	.....	.....
Jefferson	1	1	.....	1	.....	.....	1	.....
Kings	3	3	.....	2	1	3	.....	.....
Lewis .....	.....	.....	.....	.....	.....	.....	.....	.....
Livingston .....	.....	.....	.....	.....	.....	.....	.....	.....
Madison .....	.....	.....	.....	.....	.....	.....	.....	.....
Monroe	2	2	.....	1	1	2	.....	.....
Montgomery .....	.....	.....	.....	.....	.....	.....	.....	.....
New York	24	24	.....	6	18	17	7	.....
Niagara	1	1	.....	.....	1	1	.....	.....
Oneida	2	2	.....	1	1	2	.....	.....
Onondaga	1	1	.....	1	.....	.....	1	.....
Ontario	1	1	.....	1	.....	.....	1	.....
Orange .....	.....	.....	.....	.....	.....	.....	.....	.....
Orleans .....	.....	.....	.....	.....	.....	.....	.....	.....
Oswego	1	1	.....	1	.....	.....	1	.....
Otsego	1	1	.....	1	.....	1	.....	.....
Putnam .....	.....	.....	.....	.....	.....	.....	.....	.....
Queens	2	.....	2	.....	2	2	.....	.....
Rensselaer	3	2	1	3	.....	2	1	.....
Richmond .....	.....	.....	.....	.....	.....	.....	.....	.....
Rockland	1	1	.....	.....	1	1	.....	.....
St. Lawrence .....	.....	.....	.....	.....	.....	.....	.....	.....
Saratoga	1	1	.....	1	.....	.....	1	.....
Schenectady .....	.....	.....	.....	.....	.....	.....	.....	.....
Schoharie .....	.....	.....	.....	.....	.....	.....	.....	.....
Schuyler .....	.....	.....	.....	.....	.....	.....	.....	.....
Seneca .....	.....	.....	.....	.....	.....	.....	.....	.....
Steuben .....	.....	.....	.....	.....	.....	.....	.....	.....
Suffolk	4	4	.....	2	2	4	.....	.....
Sullivan .....	.....	.....	.....	.....	.....	.....	.....	.....
Tioga .....	.....	.....	.....	.....	.....	.....	.....	.....
Tompkins .....	.....	.....	.....	.....	.....	.....	.....	.....
Ulster	1	1	.....	.....	1	1	.....	.....
Warren .....	.....	.....	.....	.....	.....	.....	.....	.....
Washington	1	1	.....	.....	1	.....	1	.....
Wayne .....	.....	.....	.....	.....	.....	.....	.....	.....
Westchester	4	4	.....	1	3	4	.....	.....
Wyoming	1	1	.....	1	.....	.....	1	.....
Yates .....	.....	.....	.....	.....	.....	.....	.....	.....
Total	75	70	5	24	41	54	21	....

TABLE XXI.

Showing the Ages of 75 Criminal Insane of the State of New York, in the Asylum for Insane Criminals, December 31, 1871, by counties.

COUNTIES.	Total.	Under 20 years.	20 years and less than 30.	30 years and less than 40.	40 years and less than 50.	50 years and less than 60.	Over 60 years.	Not stated.
Albany	2	.....	.....	.....	.....	2	.....	.....
Allegany .....	.....	.....	.....	.....	.....	.....	.....	.....
Broome .....	.....	.....	.....	.....	.....	.....	.....	.....
Cattaraugus	2	.....	1	.....	.....	.....	1	.....
Cayuga	1	.....	.....	.....	.....	.....	1	.....
Chautauqua .....	.....	.....	.....	.....	.....	.....	.....	.....
Chemung .....	.....	.....	.....	.....	.....	.....	.....	.....
Chenango .....	.....	.....	.....	.....	.....	.....	.....	.....
Clinton	1	.....	.....	1	.....	.....	.....	.....
Columbia	3	.....	1	1	.....	.....	1	.....
Cortland	1	.....	.....	.....	.....	1	.....	.....
Delaware .....	.....	.....	.....	.....	.....	.....	.....	.....
Dutchess	2	.....	.....	1	.....	.....	1	.....
Erie	3	.....	2	.....	.....	.....	1	.....
Essex .....	.....	.....	.....	.....	.....	.....	.....	.....
Franklin	1	.....	.....	.....	1	.....	.....	.....
Fulton	1	.....	.....	.....	.....	1	.....	.....
Genesee	2	.....	1	.....	1	.....	.....	.....
Greene .....	.....	.....	.....	.....	.....	.....	.....	.....
Hamilton .....	.....	.....	.....	.....	.....	.....	.....	.....
Herkimer	1	.....	.....	.....	1	.....	.....	.....
Jefferson	1	.....	.....	1	.....	.....	.....	.....
Kings	3	.....	1	1	1	.....	.....	.....
Lewis .....	.....	.....	.....	.....	.....	.....	.....	.....
Livingston .....	.....	.....	.....	.....	.....	.....	.....	.....
Madison .....	.....	.....	.....	.....	.....	.....	.....	.....
Monroe	2	.....	.....	1	.....	1	.....	.....
Montgomery .....	.....	.....	.....	.....	.....	.....	.....	.....
New York	24	.....	5	11	2	4	2	.....
Niagara	1	.....	.....	1	.....	.....	.....	.....
Oneida	2	.....	.....	1	1	.....	.....	.....
Onondaga	1	.....	1	.....	.....	.....	.....	.....
Ontario	1	.....	.....	.....	.....	1	.....	.....
Orange .....	.....	.....	.....	.....	.....	.....	.....	.....
Orleans .....	.....	.....	.....	.....	.....	.....	.....	.....
Oswego	1	.....	.....	.....	1	.....	.....	.....
Otsego	1	.....	1	.....	.....	.....	.....	.....
Putnam .....	.....	.....	.....	.....	.....	.....	.....	.....
Queens	2	.....	.....	2	.....	.....	.....	.....
Rensselaer	3	.....	.....	1	1	1	.....	.....
Richmond .....	.....	.....	.....	.....	.....	.....	.....	.....
Rockland	1	.....	.....	1	.....	.....	.....	.....
St. Lawrence .....	.....	.....	.....	.....	.....	.....	.....	.....
Saratoga	1	.....	.....	.....	.....	.....	1	.....
Schenectady .....	.....	.....	.....	.....	.....	.....	.....	.....
Schoharie .....	.....	.....	.....	.....	.....	.....	.....	.....
Schuyler .....	.....	.....	.....	.....	.....	.....	.....	.....
Seneca .....	.....	.....	.....	.....	.....	.....	.....	.....
Steuben .....	.....	.....	.....	.....	.....	.....	.....	.....
Suffolk	4	.....	.....	3	1	.....	.....	.....
Sullivan .....	.....	.....	.....	.....	.....	.....	.....	.....
Tioga .....	.....	.....	.....	.....	.....	.....	.....	.....
Tompkins .....	.....	.....	.....	.....	.....	.....	.....	.....
Ulster	1	.....	.....	.....	.....	1	.....	.....
Warren .....	.....	.....	.....	.....	.....	.....	.....	.....
Washington	1	.....	.....	.....	1	.....	.....	.....
Wayne .....	.....	.....	.....	.....	.....	.....	.....	.....
Westchester	4	.....	.....	1	.....	1	2	.....
Wyoming	1	.....	.....	.....	.....	.....	1	.....
Yates .....	.....	.....	.....	.....	.....	.....	.....	.....
Total	75	.....	13	27	11	13	11	.....

TABLE XXII.

Showing the Duration of the Disease of 75 Criminal Insane of the State of New York, in the Asylum for Insane Criminals, December 31, 1871, by counties.

COUNTIES.	Total.	Less than 1 year.	1 year and less than 5 years.	5 years and less than 10.	10 years and less than 20.	20 years and less than 30.	30 years and less than 40.	40 years and less than 50.	Over 50 years.	Not stated.
Albany.....	2	...	...	...	...	...	...	...	...	2
Allegany.....	...	...	...	...	...	...	...	...	...	...
Broome.....	...	...	...	...	...	...	...	...	...	...
Cattaraugus.....	2	...	...	...	...	...	...	...	...	2
Cayuga.....	1	...	...	...	...	...	...	...	...	1
Chautauqua.....	...	...	...	...	...	...	...	...	...	...
Chemung.....	...	...	...	...	...	...	...	...	...	...
Chenango.....	...	...	...	...	...	...	...	...	...	...
Clinton.....	1	...	...	...	...	...	...	...	...	1
Columbia.....	3	...	...	...	...	...	...	...	...	3
Cortland.....	1	...	...	...	...	...	...	...	...	1
Delaware.....	...	...	...	...	...	...	...	...	...	...
Dutchess.....	2	...	...	...	...	...	...	...	...	2
Erie.....	3	...	...	...	...	...	...	...	...	3
Essex.....	...	...	...	...	...	...	...	...	...	...
Franklin.....	1	...	...	...	...	...	...	...	...	1
Fulton.....	1	...	...	...	...	...	...	...	...	1
Genesee.....	2	...	2	...	...	...	...	...	...	...
Greene.....	...	...	...	...	...	...	...	...	...	...
Hamilton.....	...	...	...	...	...	...	...	...	...	...
Herkimer.....	1	...	...	...	...	...	...	...	...	1
Jefferson.....	1	...	...	...	1	...	...	...	...	1
Kings.....	3	...	1	...	...	...	...	...	...	3
Lewis.....	...	...	...	...	...	...	...	...	...	...
Livingston.....	...	...	...	...	...	...	...	...	...	...
Madison.....	...	...	...	...	...	...	...	...	...	...
Monroe.....	2	...	1	...	1	...	...	...	...	...
Montgomery.....	...	...	...	...	...	...	...	...	...	...
New York.....	24	2	7	1	1	...	...	...	...	13
Niagara.....	1	...	1	...	...	...	...	...	...	1
Onesida.....	2	...	...	...	1	...	...	...	...	1
Onondaga.....	1	...	1	...	...	...	...	...	...	1
Ontario.....	1	...	...	...	...	...	...	...	...	1
Orange.....	...	...	...	...	...	...	...	...	...	...
Orleans.....	...	...	...	...	...	...	...	...	...	...
Oswego.....	1	1	...	...	...	...	...	...	...	1
Otsego.....	1	...	...	...	...	...	...	...	...	1
Putnam.....	...	...	...	...	...	...	...	...	...	...
Queens.....	2	...	2	...	...	...	...	...	...	...
Rensselaer.....	3	1	...	...	...	...	...	...	...	2
Richmond.....	...	...	...	...	...	...	...	...	...	...
Rockland.....	1	...	...	...	...	...	...	...	...	1
St. Lawrence.....	...	...	...	...	...	...	...	...	...	...
Saratoga.....	1	...	...	...	...	...	...	...	...	1
Schenectady.....	...	...	...	...	...	...	...	...	...	...
Schoharie.....	...	...	...	...	...	...	...	...	...	...
Schuyler.....	...	...	...	...	...	...	...	...	...	...
Seneca.....	...	...	...	...	...	...	...	...	...	...
Steuben.....	...	...	...	...	...	...	...	...	...	...
Suffolk.....	4	...	...	...	...	...	...	...	...	4
Sullivan.....	...	...	...	...	...	...	...	...	...	...
Tioga.....	...	...	...	...	...	...	...	...	...	...
Tompkins.....	...	...	...	...	...	...	...	...	...	...
Ulster.....	1	...	...	...	1	...	...	...	...	...
Warren.....	...	...	...	...	...	...	...	...	...	...
Washington.....	1	...	...	...	1	...	...	...	...	...
Wayne.....	...	...	...	...	...	...	...	...	...	...
Westchester.....	4	...	...	...	...	...	...	...	...	4
Wyoming.....	1	1	...	...	...	...	...	...	...	...
Yates.....	...	...	...	...	...	...	...	...	...	...
Total.....	75	5	15	1	6	...	...	...	...	43

TABLE XXIII.

Showing the Number and Situation of the Insane of the State of New York, December 31, 1871, by counties.

COUNTIES.	In the custody of friends.	In State institutions.	In private institutions.	In city asylums and city almshouses.	In county asylums and poor-houses.	In institutions of other States.	In the asylum for insane criminals.	Total.
Albany.....	34	105	13	.....	66	4	3	233
Allegany.....	28	16	1	.....	10	2	.....	57
Broome.....	16	19	2	.....	11	.....	.....	48
Cattaraugus.....	58	4	.....	.....	30	1	2	95
Cayuga.....	20	44	1	.....	28	.....	1	93
Chautauqua.....	29	.....	.....	.....	50	.....	.....	79
Chemung.....	18	20	2	.....	7	.....	.....	47
Chenango.....	36	9	.....	.....	16	.....	.....	61
Clinton.....	8	20	.....	.....	2	3	1	34
Columbia.....	24	21	4	.....	21	4	3	77
Cortland.....	15	4	.....	.....	10	1	1	31
Delaware.....	15	14	1	.....	8	.....	.....	38
Dutchess.....	37	55	.....	20	22	7	2	144
Erie.....	75	8	31	.....	123	.....	3	230
Essex.....	20	5	.....	.....	14	.....	.....	39
Franklin.....	8	7	.....	.....	9	1	1	26
Fulton.....	13	17	.....	.....	7	.....	1	38
Genesee.....	19	4	1	.....	21	.....	2	47
Greene.....	15	11	.....	.....	21	1	.....	48
Hamilton.....	.....	2	.....	.....	.....	.....	.....	2
Herkimer.....	30	35	.....	.....	20	1	1	87
Jefferson.....	33	5	.....	.....	68	1	1	108
Kings.....	53	.....	16	684	.....	10	3	766
Lewis.....	17	8	.....	.....	16	.....	.....	41
Livingston.....	21	9	1	.....	31	.....	.....	62
Madison.....	14	19	.....	.....	24	.....	.....	57
Monroe.....	30	14	11	116	34	2	2	209
Montgomery.....	15	13	.....	.....	21	.....	.....	49
New York.....	214	1	117	1,393	.....	42	24	1,791
Niagara.....	12	44	.....	.....	16	1	1	74
Oneida.....	53	34	1	.....	122	4	2	226
Onondaga.....	40	10	1	.....	80	.....	1	132
Ontario.....	39	41	8	.....	8	1	1	93
Orange.....	33	30	1	13	16	12	.....	105
Orleans.....	11	9	.....	.....	7	.....	.....	27
Oswego.....	30	16	1	7	32	.....	1	87
Otsego.....	27	24	.....	.....	17	.....	1	69
Putnam.....	7	8	.....	.....	3	3	.....	21
Queens.....	6	11	3	.....	13	3	2	36
Rensselaer.....	25	28	75	.....	41	5	3	177
Richmond.....	2	4	3	.....	4	9	.....	23
Rockland.....	8	5	.....	.....	5	.....	1	19
St. Lawrence.....	37	40	.....	.....	18	6	.....	101
Saratoga.....	23	16	.....	.....	29	1	1	75
Schenectady.....	12	10	.....	.....	13	4	.....	44
Schoharie.....	17	23	.....	.....	5	.....	.....	45
Schuyler.....	21	8	.....	.....	.....	.....	.....	29
Seneca.....	9	18	2	.....	4	.....	.....	33
Steuben.....	23	27	.....	.....	13	.....	.....	63
Suffolk.....	43	11	1	.....	6	17	4	85
Sullivan.....	14	6	.....	.....	26	.....	.....	46
Tioga.....	9	5	.....	.....	11	.....	.....	25
Tompkins.....	13	21	.....	.....	5	.....	.....	44
Ulster.....	22	53	4	.....	9	4	1	95
Warren.....	7	3	1	.....	4	1	.....	16
Washington.....	23	15	1	.....	33	1	1	79
Wayne.....	32	16	2	.....	19	3	.....	72
Westchester.....	16	52	6	.....	21	5	4	104
Wyoming.....	27	1	.....	.....	21	.....	1	50
Yates.....	8	12	2	.....	3	1	.....	26
Total.....	1,583	1,093	312	2,233	1,319	161	73	6,775

TABLE XXIV.

Showing the Sex, Nativity and Civil Condition of 6,775 Insane of the State of New York, December 31, 1871, by counties.

COUNTIES.	Total.	Male.	Female.	Native.	Foreign.	Single.	Married.	Not stated.
Albany	233	97	136	94	139	99	70	54
Allegany	57	29	28	39	18	25	25	7
Broome	48	14	34	41	7	21	25	2
Cattaraugus	95	45	50	59	36	46	48	1
Cayuga	89	37	52	58	31	52	36	1
Chautauqua	79	32	47	63	16	23	47	4
Chemung	47	22	25	36	11	20	24	3
Chenango	61	29	32	55	6	37	23	1
Clinton	34	16	18	23	11	13	17	4
Columbia	77	35	42	60	17	32	19	26
Cortland	31	14	17	26	5	20	9	2
Delaware	38	14	24	31	7	25	13	.....
Dutchess	144	61	83	98	46	90	46	8
Erie	250	108	147	115	135	72	47	131
Essex	39	20	19	33	6	25	14	.....
Franklin	28	15	11	19	7	13	9	4
Fulton	38	11	27	34	4	24	14	.....
Genesee	47	22	24	28	19	30	17	.....
Greene	48	19	29	41	7	20	23	6
Hamilton	2	2	.....	1	1	1	1	.....
Herkimer	87	36	51	54	33	37	29	21
Jefferson	106	43	63	80	26	61	46	1
Kings	766	315	451	263	503	392	374	.....
Lewis	41	17	24	36	5	22	19	.....
Livingston	62	31	31	46	16	37	25	.....
Madison	57	24	33	44	13	20	13	24
Monroe	209	92	117	93	116	125	83	1
Montgomery	49	22	27	26	13	29	18	2
New York	1,791	706	1,085	466	1,325	1,079	656	56
Niagara	74	28	46	39	35	35	32	7
Oneida	226	89	137	136	90	129	90	7
Onondaga	182	54	78	75	57	69	59	4
Ontario	98	42	56	65	33	61	35	2
Orange	105	50	55	86	19	50	42	12
Orleans	27	9	18	21	6	13	14	.....
Oswego	87	50	37	60	27	50	37	.....
Otsego	69	35	34	63	6	35	32	7
Putnam	21	11	10	13	3	10	8	3
Queens	38	22	15	17	21	24	9	5
Rensselaer	177	71	106	90	87	97	76	4
Richmond	22	14	8	13	9	10	6	6
Rockland	19	8	11	11	8	12	7	.....
St. Lawrence	101	50	51	66	35	45	49	7
Saratoga	75	26	49	58	17	40	34	1
Schenectady	44	22	21	34	10	25	17	2
Schoharie	45	22	23	42	3	21	23	1
Schuyler	29	17	12	29	.....	19	9	1
Seneca	33	20	13	26	7	22	10	1
Steuben	68	28	40	54	14	33	38	.....
Suffolk	35	42	43	74	11	40	29	16
Sullivan	46	16	30	33	13	19	26	1
Tioga	25	13	12	20	5	15	10	.....
Tompkins	44	26	18	37	7	14	30	.....
Ulster	95	39	56	56	39	54	38	3
Warren	16	7	9	14	2	7	7	2
Washington	79	34	45	58	21	33	44	2
Wayne	72	38	34	60	12	28	39	5
Westchester	104	61	43	53	51	61	39	4
Wyoming	50	30	20	37	13	24	25	1
Yates	26	8	18	25	1	14	11	1
Total	6,775	2,907	3,868	3,544	3,231	3,603	2,714	459

TABLE XXV.

Showing the Ages of 6,775 Insane of the State of New York, December 31, 1871, by counties.

COUNTIES.	Total.	Under 20 years.	20 years and less than 30.	30 years and less than 40.	40 years and less than 50.	50 years and less than 60.	Over 60 years.	Not stated.
Albany	233	3	47	55	59	35	18	9
Allegany	57	4	11	11	12	8	10	6
Broome	43	1	8	6	12	9	12	.....
Cattaraugus	95	1	11	25	18	14	19	7
Cayuga	89	1	10	23	26	12	14	3
Chautauqua	79	3	8	16	15	18	17	7
Chemung	47	1	10	10	8	11	6	1
Chenango	61	.....	9	10	15	17	8	2
Clinton	34	.....	8	9	7	4	2	4
Columbia	77	2	4	14	14	11	8	24
Cortland	31	.....	.....	9	7	8	7	.....
Delaware	38	.....	8	3	11	11	4	1
Dutchess	144	1	20	43	25	28	11	16
Erie	250	10	51	45	68	41	20	14
Essex	39	3	5	8	10	8	5	.....
Franklin	26	1	3	9	6	1	5	1
Fulton	33	2	5	9	7	11	2	2
Genesee	47	.....	7	8	11	13	7	1
Greene	48	.....	9	7	9	8	9	6
Hamilton	3	.....	.....	2	.....	.....	.....	.....
Herkimer	87	1	9	15	18	7	9	23
Jefferson	108	1	10	26	17	31	12	11
Kings	766	23	149	239	189	104	60	2
Lewis	41	2	8	12	8	5	3	3
Livingston	62	.....	3	11	24	10	14	.....
Madison	57	2	5	10	4	3	9	24
Monroe	209	5	21	60	55	36	27	5
Montgomery	49	4	6	10	11	8	7	3
New York	1,791	34	206	550	440	234	92	55
Niagara	74	2	5	23	17	11	10	6
Onesida	236	.....	26	43	55	51	33	19
Onondaga	132	1	17	36	39	22	20	7
Ontario	93	1	7	19	27	24	15	5
Orange	105	2	10	24	28	32	7	2
Orleans	27	.....	3	4	3	9	7	1
Oswego	87	9	16	25	13	15	9	.....
Otsego	69	.....	11	15	12	15	14	2
Putnam	21	1	3	4	5	6	2	.....
Queens	33	.....	8	9	9	6	3	3
Rensselaer	177	10	36	45	34	37	14	1
Richmond	22	.....	4	3	3	3	3	1
Rockland	19	.....	.....	4	5	6	3	1
St. Lawrence	101	4	12	19	24	24	14	4
Saratoga	75	5	12	18	5	12	13	4
Schenectady	44	1	8	8	7	17	1	2
Schoharie	45	1	6	15	5	17	1	.....
Schuyler	29	.....	5	11	8	5	.....	.....
Seneca	33	.....	9	2	12	7	2	1
Steuben	68	2	6	17	14	17	11	1
Suffolk	85	.....	9	12	21	15	12	16
Sullivan	46	.....	8	16	7	6	6	3
Tioga	25	1	4	3	9	4	4	.....
Tompkins	44	1	6	5	7	15	10	.....
Ulster	95	4	17	21	25	17	6	5
Warren	18	.....	4	2	4	3	3	.....
Washington	79	1	6	17	18	17	16	4
Wayne	72	1	12	15	16	14	12	2
Westchester	104	4	20	23	25	14	12	5
Wyoming	50	2	4	7	12	12	8	5
Yates	26	.....	4	6	5	6	5	.....
Total	6,775	157	1,140	1,727	1,570	1,150	697	334

TABLE XXVI.

Showing the Duration of the Disease of 6,775 Insane of the State of New York, December 31, 1871, by counties.

COUNTIES.	Total.	Less than 1 year.	1 year and less than 5.	5 years and less than 10.	10 years and less than 20.	20 years and less than 30.	30 years and less than 40.	40 years and less than 50.	Over 50 years.	Not stated.
Albany.....	223	23	40	12	19	7	2	2	....	100
Allegany	57	11	22	2	4	3	....	....	....	15
Broome	48	4	13	6	5	3	2	....	....	10
Cattaraugus	95	11	31	12	20	11	3	4	....	12
Cayuga.....	80	7	21	5	12	6	....	....	1	26
Chautauqua	79	3	8	6	1	3	1	....	....	57
Chemung	47	6	12	6	3	2	....	3	....	15
Chenango	61	7	16	4	2	6	4	....	....	22
Clinton	34	6	15	3	4	3	..	....	....	3
Columbia	77	2	11	3	16	8	1	....	....	26
Cortland	31	2	8	3	4	1	....	1	....	12
Delaware.....	28	3	10	3	7	1	....	1	....	12
Dutchess	144	15	24	18	19	4	2	4	....	58
Erie	250	29	30	20	20	7	2	1	....	141
Essex	39	5	7	3	6	2	....	....	....	16
Franklin	26	2	3	3	4	2	....	....	....	12
Fulton	33	6	4	4	5	1	3	1	....	14
Genesee	47	4	12	9	8	3	..	....	....	11
Greene	43	6	9	14	6	2	2	2	....	7
Hamilton	2	....	1	1	....	....	....	....	....	....
Herkimer	37	7	9	12	6	5	....	....	....	43
Jefferson	103	5	22	17	10	7	2	2	....	42
Kings	766	174	287	157	115	12	1	....	....	20
Lewis	41	4	16	9	6	....	1	....	....	5
Livingston	62	9	15	16	14	2	2	2	....	2
Madison	57	9	9	3	4	....	1	....	....	21
Monroe	209	18	65	25	42	7	1	....	1	29
Montgomery	49	4	7	4	2	2	1	....	....	29
New York	1,791	471	737	249	157	41	5	2	....	109
Niagara	74	8	11	8	8	3	3	..	....	32
Oneida	226	27	34	45	67	19	16	1	....	17
Onondaga	132	10	43	23	25	11	4	1	....	15
Ontario	93	3	25	17	10	7	2	....	....	29
Orange	103	15	18	7	12	6	2	....	1	42
Orleans	27	1	10	1	5	4	1	1	....	4
Oswego	37	11	30	12	5	1	....	....	....	26
Otsego	69	4	23	16	11	4	3	....	....	8
Putnam	21	1	3	3	3	2	....	....	....	4
Queens	33	1	13	2	3	....	....	....	....	19
Rensselaer	177	21	26	13	14	4	2	....	....	97
Richmond	22	3	7	2	1	1	1	....	....	7
Rockland	19	....	2	5	3	4	1	1	....	3
St. Lawrence.....	101	16	22	15	6	4	2	1	1	34
Saratoga	75	6	16	2	4	3	2	3	....	29
Schenectady	44	5	8	11	10	5	....	1	....	4
Schoharie	45	10	14	7	2	1	....	....	....	11
Schuyler	29	3	8	5	1	....	....	....	....	12
Seneca	33	3	10	5	3	1	....	....	....	6
Steuben	63	9	16	14	13	4	2	....	2	2
Suffolk	53	10	19	15	16	2	2	....	....	21
Sullivan.....	46	3	8	4	2	1	3	....	....	25
Tioga	25	4	3	1	3	....	1	....	....	3
Tompkins	44	12	10	6	4	5	1	....	....	6
Ulster.....	95	9	35	11	12	6	1	....	....	21
Warren	16	2	2	4	....	....	....	....	....	3
Washington	79	5	10	7	4	4	....	....	....	49
Wayne	72	9	19	8	7	3	1	1	....	24
Westchester	104	23	23	9	8	1	....	1	....	29
Wyoming	50	4	9	2	9	3	2	....	....	21
Yates	26	3	6	4	6	5	....	....	....	2
Total	6,775	1,100	1,975	923	811	270	83	25	6	1,597

TABLE XXVII.

Showing the Previous Occupation of 6,775 Insane of the State of New York, December 31, 1871, by counties.

COUNTIES.	Total.	Laborers.	Domestics.	Agricultural.	Mechanical.	Commercial.	Professional.	No occupation.	Not stated.
Albany.....	223	9	66	10	25	9	5	10	89
Allegany.....	57	2	13	3	5	.....	2	1	28
Broome.....	48	2	13	6	4	.....	1	4	18
Cattaraugus.....	95	10	18	25	1	1	1	.....	39
Cayuga.....	89	3	26	11	6	1	4	7	31
Chautauqua.....	79	5	8	8	1	.....	.....	.....	57
Chemung.....	47	6	16	8	3	3	.....	4	7
Chenango.....	61	3	16	12	4	1	3	3	19
Clinton.....	34	4	13	4	3	1	.....	.....	9
Columbia.....	77	4	15	1	1	.....	3	3	45
Cortland.....	81	2	10	8	1	.....	3	.....	7
Delaware.....	88	1	10	2	1	1	2	4	17
Dutchess.....	144	14	43	17	11	3	5	5	46
Erie.....	250	3	21	15	5	3	3	3	187
Essex.....	39	.....	11	11	4	1	4	2	6
Franklin.....	26	2	2	3	2	.....	.....	4	3
Fulton.....	33	1	16	3	4	.....	1	3	10
Genesee.....	47	3	8	3	2	.....	.....	.....	23
Greene.....	43	1	16	5	5	.....	2	4	15
Hamilton.....	2	.....	.....	2	.....	.....	.....	.....	.....
Herkimer.....	37	4	17	7	4	1	3	12	29
Jefferson.....	103	11	46	19	5	.....	.....	3	19
Kings.....	766	73	36	6	51	49	7	93	446
Lewis.....	41	3	13	5	1	.....	1	2	11
Livingston.....	62	11	21	11	3	1	.....	1	14
Madison.....	37	7	14	27	1	1	.....	3	4
Monroe.....	209	30	49	16	13	7	7	7	80
Montgomery.....	49	3	19	9	.....	1	.....	1	11
New York.....	1,791	155	524	11	233	93	43	107	550
Niagara.....	74	9	22	7	3	2	1	2	23
Oneida.....	226	20	29	24	17	7	11	7	41
Onondaga.....	132	13	61	16	6	1	3	5	22
Ontario.....	93	11	29	14	7	1	3	10	23
Orange.....	105	16	26	6	3	5	.....	4	40
Orleans.....	27	2	5	4	6	1	.....	2	7
Oswego.....	37	12	26	13	7	4	7	4	14
Otsego.....	69	6	17	20	3	.....	3	3	17
Putnam.....	21	1	5	2	2	2	.....	1	3
Queens.....	33	9	3	2	5	1	1	2	15
Rensselaer.....	177	24	53	3	22	5	7	17	33
Richmond.....	22	1	1	.....	3	.....	1	2	14
Rockland.....	19	.....	.....	2	2	1	.....	.....	13
St. Lawrence.....	101	10	23	22	3	4	2	1	16
Saratoga.....	75	6	15	3	6	3	.....	4	33
Schenectady.....	44	6	7	7	4	.....	3	.....	17
Schoharie.....	45	4	13	11	3	.....	1	3	10
Schuyler.....	29	.....	9	5	5	2	1	1	6
Seneca.....	33	3	4	5	7	5	.....	7	2
Steuben.....	63	6	29	6	6	1	2	1	17
Suffolk.....	35	4	9	3	3	.....	2	3	53
Sullivan.....	46	2	3	5	1	1	1	1	32
Tioga.....	25	4	9	4	4	1	1	.....	2
Tompkins.....	44	5	13	9	4	1	4	2	6
Ulster.....	95	12	30	3	10	.....	2	3	25
Warren.....	16	.....	4	4	.....	1	.....	.....	7
Washington.....	79	5	37	11	6	3	2	1	14
Wayne.....	72	3	20	17	4	1	.....	3	19
Westchester.....	104	13	29	4	10	4	2	10	27
Wyoming.....	50	2	21	3	2	.....	.....	1	16
Yates.....	26	1	13	3	4	.....	.....	.....	5
Total.....	6,775	677	1,665	542	637	244	165	411	2,434

TABLE XXVIII.

Showing the Number of Recoveries of Insane of the State of New York, during the year ending December 31, 1871, by counties.

COUNTIES.	In the custody of friends.	In the State institutions.	In private institutions.	In the city asylums and city almshouses.	In county asylums and county poor-houses.	In institutions of other States.	In the criminal asylum.	Total.
Albany	4	10	.....	.....	.....	2	.....	16
Allegany	1	1	.....	.....	.....	.....	.....	2
Broome .....	.....	1	.....	.....	.....	.....	.....	1
Cattaraugus .....	.....	.....	.....	.....	.....	.....	.....	.....
Cayuga .....	.....	5	2	.....	.....	.....	.....	7
Chautauqua	2	3	.....	.....	.....	.....	.....	5
Chemung	1	3	.....	.....	.....	.....	.....	4
Chenango .....	.....	1	.....	.....	.....	.....	.....	1
Clinton .....	.....	1	.....	.....	.....	1	.....	2
Columbia	2	5	.....	.....	.....	1	.....	8
Cortland	2	1	.....	.....	.....	.....	.....	3
Delaware .....	.....	1	1	.....	1	.....	1	4
Dutchess .....	.....	3	1	.....	.....	.....	1	5
Erie	1	7	21	.....	.....	.....	.....	29
Essex .....	.....	3	.....	.....	1	.....	.....	4
Franklin .....	.....	.....	.....	.....	.....	.....	.....	.....
Fulton	1	2	.....	.....	.....	.....	.....	3
Genesee .....	.....	1	.....	.....	6	.....	.....	7
Greene	1	2	.....	.....	.....	1	.....	4
Hamilton .....	.....	.....	.....	.....	.....	.....	.....	.....
Herkimer .....	.....	7	.....	.....	.....	.....	.....	7
Jefferson .....	.....	2	.....	.....	.....	.....	.....	2
Kings	3	.....	8	125	.....	1	.....	137
Lewis .....	.....	2	.....	.....	.....	.....	.....	2
Livingston	1	3	.....	.....	.....	.....	.....	4
Madison .....	.....	.....	.....	.....	.....	.....	.....	.....
Monroe	3	4	.....	9	.....	.....	.....	16
Montgomery .....	.....	3	.....	.....	.....	.....	.....	3
New York	13	.....	28	230	.....	7	1	298
Niagara .....	.....	4	1	.....	1	.....	1	7
Oneida	1	19	.....	.....	.....	1	.....	21
Onondaga .....	.....	4	1	.....	.....	.....	.....	5
Ontario .....	.....	4	2	.....	.....	.....	.....	6
Orange .....	.....	3	2	1	.....	.....	.....	6
Orleans .....	.....	2	1	.....	2	.....	.....	5
Oswego .....	.....	3	.....	.....	3	.....	.....	6
Otsego	1	3	.....	.....	2	.....	.....	6
Putnam .....	.....	.....	1	.....	.....	.....	.....	1
Queens .....	.....	1	2	.....	4	.....	.....	7
Rensselaer .....	.....	.....	3	.....	.....	.....	.....	3
Richmond .....	.....	.....	.....	.....	4	1	.....	5
Rockland .....	.....	.....	1	.....	.....	.....	.....	1
St. Lawrence	2	3	.....	.....	.....	.....	.....	10
Saratoga .....	.....	5	.....	.....	.....	4	.....	9
Schenectady .....	.....	2	.....	.....	.....	.....	.....	2
Schoharie .....	.....	4	.....	.....	.....	.....	.....	4
Schuyler .....	.....	1	1	.....	.....	.....	.....	2
Seneca .....	.....	.....	.....	.....	.....	.....	.....	.....
Stenben .....	.....	7	.....	.....	.....	.....	.....	7
Suffolk	3	2	2	.....	.....	2	.....	9
Sullivan .....	.....	3	.....	.....	1	.....	.....	4
Tioga	1	1	1	.....	.....	.....	.....	3
Tompkins .....	.....	4	.....	.....	.....	.....	.....	4
Ulster .....	.....	9	.....	.....	6	.....	.....	15
Warren .....	.....	.....	.....	.....	.....	.....	.....	.....
Washington .....	.....	1	.....	.....	2	6	.....	9
Wayne .....	.....	4	.....	.....	4	.....	.....	8
Westchester .....	.....	3	3	.....	.....	.....	.....	11
Wyoming .....	.....	1	.....	.....	.....	.....	.....	1
Yates .....	.....	1	.....	.....	.....	.....	.....	1
Total	43	175	98	374	40	27	4	751

TABLE XXIX.

Showing the Duration of the Disease of 761 Insane of the State of New York, who Recovered during the year ending December 31, 1871, by counties.

COUNTIES.	Total.	Less than 1 year.	1 year and less than 5 years.	5 years and less than 10.	10 years and less than 20.	20 years and less than 30.	30 years and less than 40.	40 years and less than 50.	Over 50 years.	Not stated.
Albany.....	16	3	3	1	..	..	..	..	..	1
Allegany ..	2	..	1	..	..	..	..	..	..	1
Broome	1	..	..	..	..	..	..	..	..	1
Cattaraugus.....	..	..	..	..	..	..	..	..	..	..
Cayuga.....	7	4	2	..	..	..	..	..	..	..
Chautauqua	5	2	2	..	..	..	..	..	..	1
Chemung	4	1	1	..	..	..	..	..	..	..
Chenango	1	..	1	..	..	..	..	..	..	..
Clinton	2	2	..	..	..	..	..	..	..	..
Columbia	3	1	1	..	..	..	..	..	..	..
Cortland	3	..	1	..	..	..	..	..	..	..
Delaware.....	4	2	1	..	..	..	..	..	..	1
Dutchess.....	5	1	2	..	..	..	..	..	..	2
Erle.....	20	17	12	..	..	..	..	..	..	..
Essex	4	1	2	..	..	..	..	..	..	1
Franklin .....	..	..	..	..	..	..	..	..	..	..
Fulton	3	1	2	..	..	..	..	..	..	..
Genesee.....	7	2	1	..	..	..	..	..	..	4
Greene.....	4	..	3	1	..	..	..	..	..	..
Hamilton .....	..	..	..	..	..	..	..	..	..	..
Herkimer	7	..	6	..	..	1	..	..	..	..
Jefferson.....	2	1	1	..	..	..	..	..	..	..
Kings	137	126	9	1	..	..	..	..	..	1
Lewis	2	..	2	..	..	..	..	..	..	..
Livingston.....	4	..	4	..	..	..	..	..	..	..
Madison .....	..	..	..	..	..	..	..	..	..	..
Monroe	16	5	11	..	..	..	..	..	..	..
Montgomery.....	3	1	2	..	..	..	..	..	..	..
New York	298	185	101	8	..	1	..	..	..	8
Niagara	7	1	5	..	..	..	..	..	..	1
Oneida	21	7	13	1	..	..	..	..	..	..
Onondaga.....	5	2	3	..	..	..	..	..	..	..
Ontario	6	3	3	..	..	..	..	..	..	..
Orange	9	2	4	..	..	..	..	..	..	3
Orleans	5	2	3	..	..	..	..	..	..	..
Oswego	6	2	4	..	..	..	..	..	..	..
Otsego	6	1	3	..	2	..	..	..	..	..
Putnam	1	1	..	..	..	..	..	..	..	..
Queens.....	8	2	2	..	..	..	..	..	..	4
Rensselaer	3	3	..	..	..	..	..	..	..	..
Richmond.....	5	3	..	..	..	..	..	..	..	2
Rockland	1	1	..	..	..	..	..	..	..	..
St. Lawrence.....	10	5	5	..	..	..	..	..	..	..
Saratoga	9	3	4	1	1	..	..	..	..	..
Schenectady	2	..	2	..	..	..	..	..	..	..
Schoharie	4	1	3	..	..	..	..	..	..	..
Schuyler	2	..	2	..	..	..	..	..	..	..
Seneca .....	..	..	..	..	..	..	..	..	..	..
Steuben.....	7	1	6	..	..	..	..	..	..	..
Suffolk.....	9	3	3	..	1	..	..	..	..	2
Sullivan.....	4	..	3	..	..	..	..	..	..	1
Tioga	3	1	2	..	..	..	..	..	..	..
Tompkins.....	4	2	1	1	..	..	..	..	..	..
Ulster.....	15	4	10	1	..	..	..	..	..	..
Warren .....	..	..	..	..	..	..	..	..	..	..
Washington.....	9	4	3	..	..	..	..	..	..	2
Wayne	8	3	2	..	..	..	..	..	..	3
Westchester.....	11	3	8	..	..	..	..	..	..	..
Wyoming.....	1	..	1	..	..	..	..	..	..	..
Yates	1	..	1	..	..	..	..	..	..	..
Total.....	761	490	286	10	4	2	..	..	..	30

TABLE XXX.

Showing the Number of Deaths of Insane of the State of New York, during the year ending December 31, 1871, by counties.

COUNTIES.	In the custody of friends.	In the State Institutions.	In private Institutions.	In the city asylums and city almshouses.	In county asylums and county poor-houses.	In institutions of other States.	In the criminal asylum.	Total.
Albany	1	7	.....	.....	.....	.....	.....	8
Allegany .....	.....	1	.....	.....	.....	.....	.....	1
Broome	1	1	1	.....	.....	.....	.....	3
Cattaraugus .....	.....	.....	.....	.....	2	.....	.....	2
Cayuga .....	.....	4	.....	.....	.....	.....	.....	4
Chautauqua .....	.....	.....	.....	.....	.....	.....	1	1
Chemung .....	.....	2	.....	.....	4	.....	.....	6
Chenango .....	.....	1	.....	.....	1	.....	.....	2
Clinton .....	.....	2	.....	.....	3	.....	.....	5
Columbia .....	.....	2	.....	.....	.....	.....	.....	2
Cortland .....	.....	.....	.....	.....	.....	.....	.....	.....
Delaware .....	.....	.....	.....	.....	.....	.....	.....	.....
Dutchess .....	.....	5	.....	1	1	2	.....	9
Erie	2	.....	5	.....	.....	.....	.....	7
Essex .....	.....	1	.....	.....	.....	.....	.....	1
Franklin .....	.....	1	.....	.....	.....	.....	.....	1
Fulton .....	.....	1	.....	.....	.....	.....	.....	1
Genesee	1	.....	.....	.....	.....	.....	.....	1
Greene .....	.....	.....	.....	.....	2	.....	.....	2
Hamilton .....	.....	.....	.....	.....	.....	.....	.....	.....
Herkimer .....	.....	2	.....	.....	.....	1	.....	3
Jefferson .....	.....	2	.....	.....	1	.....	.....	3
Kings	2	.....	2	74	.....	1	.....	79
Lewis	1	1	.....	.....	.....	.....	.....	2
Livingston .....	.....	1	.....	.....	.....	.....	.....	1
Madison .....	.....	.....	.....	.....	.....	.....	.....	.....
Monroe	1	2	.....	4	.....	.....	.....	7
Montgomery .....	.....	1	.....	.....	.....	.....	.....	1
New York	8	.....	19	171	.....	3	.....	201
Niagara .....	.....	2	.....	.....	1	.....	.....	3
Oneida .....	.....	5	.....	.....	3	.....	.....	8
Onondaga .....	.....	3	1	.....	2	.....	.....	6
Ontario	1	4	1	.....	.....	.....	.....	6
Orange	2	2	.....	.....	1	2	1	6
Orleans .....	.....	2	.....	.....	2	.....	.....	4
Oswego .....	.....	3	.....	.....	2	.....	.....	5
Otsego .....	.....	.....	.....	.....	2	.....	.....	2
Putnam .....	.....	.....	.....	.....	.....	.....	.....	.....
Queens	1	.....	.....	.....	4	.....	.....	5
Rensselaer .....	.....	1	5	.....	1	.....	1	8
Richmond .....	.....	.....	.....	.....	1	.....	.....	1
Rockland .....	.....	.....	.....	.....	.....	.....	.....	.....
St. Lawrence	1	7	.....	.....	.....	.....	.....	8
Saratoga .....	.....	4	.....	.....	1	3	.....	8
Schenectady .....	.....	1	.....	.....	.....	.....	.....	1
Schoharie .....	.....	.....	.....	.....	.....	.....	.....	.....
Schuyler	2	4	.....	.....	.....	.....	.....	6
Seneca	2	2	.....	.....	1	.....	.....	5
Steuben .....	.....	5	.....	.....	.....	.....	.....	5
Suffolk	3	1	.....	.....	1	2	.....	7
Sullivan .....	.....	.....	.....	.....	2	.....	.....	2
Tioga	2	2	.....	.....	.....	.....	.....	4
Tompkins .....	.....	4	.....	.....	.....	.....	.....	4
Ulster .....	.....	8	1	.....	1	.....	.....	10
Warren	1	1	.....	.....	.....	.....	.....	2
Washington	1	.....	.....	.....	6	1	.....	8
Wayne	1	.....	.....	.....	2	.....	.....	3
Westchester	1	7	2	.....	3	.....	1	14
Wyoming .....	.....	1	.....	.....	.....	.....	.....	1
Yates .....	.....	4	.....	.....	.....	1	.....	5
Total	35	110	37	250	50	16	4	502

TABLE XXXI.

Showing the Duration of the Disease of 502 Insane of the State of New York, who Died during the year ending December 31, 1871, by counties.

COUNTIES.	Total.	Less than 1 year.	1 year and less than 5.	5 years and less than 10.	10 years and less than 20.	20 years and less than 30.	30 years and less than 40.	40 years and less than 50.	Over 50 years.	Not stated.
Albany.....	3	.....	7	.....	1	.....	.....	.....	.....	1
Allegany.....	1	.....	.....	.....	1	.....	.....	.....	.....	.....
Broome.....	3	.....	.....	.....	.....	.....	.....	1	.....	.....
Cattaraugus.....	2	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cayuga.....	4	.....	1	2	1	.....	.....	.....	.....	.....
Chautauqua.....	1	.....	.....	.....	1	.....	.....	.....	.....	.....
Chemung.....	6	2	2	2	.....	.....	.....	.....	.....	.....
Chenango.....	2	.....	1	.....	.....	.....	.....	.....	.....	1
Clinton.....	5	.....	1	.....	.....	1	.....	.....	.....	3
Columbia.....	2	1	.....	.....	.....	.....	.....	.....	.....	1
Cortland.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Delaware.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Dutchess.....	9	1	5	1	1	.....	.....	.....	.....	1
Erie.....	7	2	4	.....	.....	.....	.....	.....	.....	1
Essex.....	1	.....	1	.....	.....	.....	.....	.....	.....	.....
Franklin.....	1	.....	.....	1	.....	.....	.....	.....	.....	.....
Fulton.....	1	.....	.....	1	.....	.....	.....	.....	.....	.....
Genesee.....	1	.....	.....	.....	1	.....	.....	.....	.....	.....
Greene.....	2	.....	.....	.....	.....	.....	.....	.....	.....	2
Hamilton.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Herkimer.....	3	2	.....	.....	.....	.....	.....	.....	.....	1
Jefferson.....	3	1	1	.....	.....	.....	.....	.....	.....	1
Kings.....	79	33	21	19	3	2	.....	.....	.....	1
Lewis.....	2	1	1	.....	.....	.....	.....	.....	.....	.....
Livingston.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....
Madison.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Monroe.....	7	2	5	.....	.....	.....	.....	.....	.....	.....
Montgomery.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....
New York.....	201	77	97	18	6	1	.....	.....	.....	7
Niagara.....	3	1	.....	.....	.....	.....	.....	.....	.....	2
Onesida.....	8	2	3	1	.....	1	.....	.....	.....	1
Onondaga.....	6	2	3	1	.....	.....	.....	.....	.....	.....
Ontario.....	6	1	1	3	1	.....	.....	.....	.....	.....
Orange.....	3	1	2	3	1	.....	.....	.....	.....	2
Orleans.....	4	.....	1	1	1	.....	.....	.....	.....	1
Oswego.....	5	3	1	.....	.....	.....	.....	.....	.....	1
Otsego.....	2	.....	.....	.....	.....	1	1	.....	.....	.....
Putnam.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Queens.....	5	1	.....	.....	.....	.....	.....	.....	.....	4
Rensselaer.....	3	1	3	.....	.....	.....	.....	.....	.....	4
Richmond.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....
Rockland.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
St. Lawrence.....	3	3	.....	2	.....	.....	.....	.....	.....	3
Saratoga.....	3	3	.....	2	.....	1	.....	.....	.....	2
Schenectady.....	1	.....	.....	.....	.....	.....	1	.....	.....	.....
Schoharie.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Schuyler.....	6	.....	2	.....	2	.....	.....	.....	.....	2
Seneca.....	5	1	1	1	1	.....	.....	.....	.....	1
Steuben.....	5	1	1	1	.....	1	.....	.....	.....	1
Suffolk.....	7	.....	4	.....	3	.....	.....	.....	.....	.....
Sullivan.....	2	.....	.....	.....	.....	.....	.....	.....	.....	2
Tioga.....	4	1	1	.....	.....	.....	.....	.....	.....	2
Tompkins.....	4	.....	.....	1	1	1	.....	.....	.....	1
Ulster.....	10	1	4	2	1	.....	.....	.....	.....	2
Warren.....	2	.....	.....	1	1	.....	.....	.....	.....	.....
Washington.....	3	1	.....	.....	.....	1	.....	.....	.....	6
Wayne.....	3	.....	1	.....	.....	.....	.....	.....	.....	2
Westchester.....	14	1	7	.....	.....	.....	.....	.....	.....	6
Wyoming.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....
Yates.....	5	.....	3	1	.....	.....	.....	.....	.....	1
Total.....	502	150	189	59	25	10	2	1	..	68

TABLE XXXII.

Showing the Duration of the Disease of 8,038 Insane of the State of New York, including those who Recovered, and those who Died, during the year ending December 31, 1871, by counties.

COUNTIES.	Recovered during the year 1871.	Died during the year 1871.	Living December 31st, 1871.	Total insane in the State for 1871.	Less than 1 year.	1 year and less than 5 years.	5 years and less than 10.	10 years and less than 20.	20 years and less than 30.	30 years and less than 40.	40 years and less than 50.	Over 50 years.	Not stated.
Albany.....	16	8	223	247	31	62	13	19	7	2	2	..	261
Allegany.....	2	1	57	60	11	23	2	5	3	..	..	..	16
Brockport.....	1	2	48	52	4	15	6	5	8	2	1	..	11
Cattaraugus.....	..	2	95	97	11	23	12	20	11	3	4	..	12
Cayuga.....	7	4	89	100	11	25	7	14	6	..	..	1	26
Chautauqua.....	5	1	79	85	5	10	6	2	3	1	..	..	35
Chemung.....	4	6	47	57	9	17	6	3	2	..	3	..	15
Chenango.....	1	2	61	64	7	18	4	2	6	4	..	..	23
Clinton.....	2	5	34	41	8	16	3	4	4	..	..	..	6
Columbia.....	3	2	77	87	4	18	3	16	3	1	..	..	27
Cortland.....	3	..	31	34	2	11	3	4	1	..	..	..	13
Delaware.....	4	..	28	43	5	11	3	7	1	..	1	..	14
Dutchess.....	5	9	144	158	17	31	19	20	4	2	4	..	61
Erie.....	29	7	250	286	43	46	20	20	7	2	1	..	142
Essex.....	4	1	29	44	6	10	3	6	2	..	..	..	17
Franklin.....	..	1	26	27	2	3	4	4	2	..	..	..	12
Fulton.....	3	1	38	42	7	6	5	5	1	3	1	..	14
Genesee.....	7	1	47	55	6	13	9	9	3	..	..	..	15
Greene.....	4	2	48	54	6	12	15	6	2	2	2	..	9
Hamilton.....	..	..	2	2	..	1	1	..	..	..	..	..	..
Herkimer.....	7	3	87	97	9	15	12	6	6	..	..	..	49
Jefferson.....	2	8	108	118	7	24	17	10	7	2	2	..	44
Kings.....	137	79	766	982	233	317	177	118	14	1	..	..	22
Lewis.....	2	2	41	45	5	19	9	6	..	1	..	..	5
Livingston.....	4	1	62	67	10	19	16	14	2	2	2	..	2
Madison.....	..	..	57	57	9	9	3	4	..	1	..	..	31
Monroe.....	16	7	209	232	25	81	25	43	7	1	..	1	39
Montgomery.....	3	1	49	53	6	9	4	3	..	2	..	..	29
New York.....	298	201	1,791	2,290	733	955	265	169	43	5	2	..	124
Niagara.....	7	3	74	84	10	16	8	8	3	3	..	..	36
Oneida.....	21	8	226	255	26	50	47	67	20	16	1	..	18
Onondaga.....	5	6	132	143	14	49	24	25	11	4	1	..	15
Ontario.....	6	6	98	110	12	29	20	11	7	2	..	..	29
Orange.....	9	8	105	122	18	24	10	13	6	2	..	1	48
Orleans.....	5	4	27	36	3	14	2	6	4	1	1	..	5
Oswego.....	6	5	87	98	16	25	12	5	1	..	..	..	29
Otsego.....	6	2	69	77	5	26	16	18	5	4	..	..	8
Putnam.....	1	..	21	22	2	8	3	3	2	..	..	..	4
Queens.....	8	5	88	51	4	15	2	3	..	..	..	..	27
Rensselaer.....	8	8	177	123	25	34	13	14	4	2	..	..	101
Richmond.....	5	1	22	28	7	7	2	1	1	1	..	..	9
Rockland.....	1	..	19	20	1	2	5	3	4	1	1	..	3
St. Lawrence.....	10	8	101	119	24	27	17	6	4	2	1	1	37
Saratoga.....	9	8	75	92	12	20	5	5	4	2	3	..	41
Schenectady.....	2	1	44	47	5	10	11	10	5	1	1	..	4
Schoharie.....	4	..	45	49	11	17	7	2	1	..	..	..	11
Schuyler.....	2	6	29	37	3	12	5	3	..	..	..	..	14
Seneca.....	..	5	33	38	4	11	6	9	1	..	..	..	7
Steuben.....	7	5	68	80	11	23	15	18	5	2	..	2	4
Suffolk.....	9	7	85	101	13	26	15	20	2	2	..	..	23
Sullivan.....	4	2	46	52	3	11	4	2	1	3	..	..	23
Tioga.....	3	4	25	32	6	11	1	3	..	1	..	..	10
Tompkins.....	4	4	44	52	14	11	8	5	6	1	..	..	7
Ulster.....	15	10	95	120	14	49	14	13	6	1	..	..	23
Warren.....	..	2	16	18	2	2	5	1	..	..	..	..	8
Washington.....	9	8	79	96	10	13	7	4	5	..	..	..	57
Wayne.....	8	3	72	83	12	22	8	7	3	1	1	..	29
Westchester.....	11	14	104	129	27	36	9	8	1	..	1	..	45
Wyoming.....	1	1	50	53	5	11	2	9	3	2	..	..	22
Yates.....	1	5	26	32	3	10	5	6	5	..	..	..	3
Total.....	761	502	6,775	8,038	1,670	2,450	992	840	282	90	36	6	1,673

TABLE XXXIII.

Showing the Number of Insane of the State of New York, January 1st, 1871, the Number Taken Insane during the year, the Total Insane for the year, the Number of Recoveries and Deaths, and the Number Living December 31, 1871.

COUNTIES.	Number of insane Jan. 1st, 1871.	Taken insane during the year 1871.	Total insane for the year.	Recovered during the year 1871.	Died during the year 1871.	Living Dec. 31, 1871.		
						Male.	Female.	Total.
Albany	216	31	247	16	8	97	128	225
Allegany	49	11	60	3	1	29	28	57
Broome	48	4	52	1	1	14	34	48
Cattaraugus	88	11	97	....	3	45	50	95
Cayuga	89	11	100	7	4	37	53	89
Chautauqua	39	5	35	5	1	33	47	79
Chemung	48	9	57	4	6	23	25	47
Chenango	57	7	64	1	2	29	33	61
Clinton	33	18	41	2	5	16	18	34
Columbia	38	4	37	3	2	35	42	77
Cortland	32	2	34	3	...	14	17	31
Delaware	37	5	42	4	....	14	24	38
Dutchess	141	17	158	5	9	61	83	144
Erie	233	48	286	29	7	108	147	250
Essex	38	6	44	4	1	20	19	39
Franklin	25	2	27	....	1	15	11	26
Fulton	25	7	42	3	1	11	27	38
Genesee	49	6	55	7	1	23	24	47
Greene	48	6	54	4	2	19	29	48
Hamilton	2	....	2	....	....	2	....	2
Herkimer	90	7	97	7	3	36	51	87
Jefferson	106	7	113	3	3	43	65	108
Kings	649	333	982	187	79	315	451	766
Lewis	40	5	45	2	2	17	24	41
Livingston	57	10	67	4	1	31	31	62
Madison	48	9	57	....	....	24	33	57
Monroe	207	25	232	16	7	92	117	209
Montgomery	47	6	53	3	1	22	27	49
New York	1,557	733	2,290	298	201	706	1,085	1,791
Niagara	74	10	84	7	3	28	46	74
Oneida	219	36	255	21	8	89	137	226
Onondaga	129	14	143	5	6	54	78	132
Ontario	98	12	110	6	6	42	56	98
Orange	104	18	122	9	8	50	55	105
Orleans	33	3	36	5	4	9	18	27
Oswego	82	16	98	6	5	50	37	87
Otsego	72	5	77	6	2	35	34	69
Putnam	20	2	22	1	....	11	10	21
Queens	47	4	51	3	5	22	15	38
Rensselaer	168	25	193	3	3	71	106	177
Richmond	31	7	38	5	1	14	8	22
Rockland	19	1	20	1	....	8	11	19
St. Lawrence	95	24	119	10	3	50	51	101
Saratoga	80	12	92	9	3	26	49	75
Schenectady	42	5	47	2	1	23	21	44
Schoharie	38	11	49	4	....	22	22	45
Schuyler	34	3	37	2	6	17	13	29
Seneca	34	4	38	..	5	20	13	33
Stenben	69	11	80	7	5	28	40	68
Suffolk	88	13	101	9	7	42	43	85
Sullivan	49	3	52	4	2	16	20	46
Tioga	26	6	32	3	4	13	12	25
Tompkins	33	14	52	4	4	26	18	44
Ulster	106	14	120	15	10	39	56	95
Warren	16	2	18	....	2	7	9	16
Washington	86	10	96	9	3	34	45	79
Wayne	71	12	83	3	3	38	34	72
Westchester	102	27	129	11	14	61	43	104
Wyoming	47	5	52	1	1	30	20	50
Yates	29	3	32	1	5	8	18	26
Total	6,368	1,670	8,038	761	502	2,907	3,868	6,775

TABLE XXXIV.

Showing the Number and Situation of the Idiots of the State of New York, December 31st, 1871, according to reports on file in the Office of the State Commissioner of Public Charities.

	Male.	Female.	Total.
In the custody of friends *.....	959	597	1,556
In the New York Asylum for Idiots.....	74	63	137
In the city alms-houses	109	76	185
In county poor-houses	213	221	434
Total	<u>1,355</u>	<u>957</u>	<u>2,312</u>

*By the United States census of 1870 the population of the State of New York was 4,882,759. The inquiries and investigations relating to idiots in family custody were extended to 3,947,394 of the population, and estimates are made as to the remainder, in the several counties respectively, on the basis of the returns referred to. (See Table XXXV.)

Table XXXVI shows the sex and nativity of 2,312 idiots of the State of New York, December 31, 1871, by counties.

Table XXXVII shows the ages of 2,312 idiots of the State of New York, December 31, 1871, by counties.

NOTE.—The returns show that quite a large number of the idiots, both in institutions and in family care, are epileptics, and also that many of them are filthy, destructive, violent and dangerous. The statements upon these points, however, are too imperfect to be tabulated.

TABLE XXXV.

Showing the Number of Idiots of the State of New York, December 31st, 1871, by Counties.

COUNTIES.	IN THE CUSTODY OF FRIENDS.			In the State Institutions.	In City Almshouses.	In County Poorhouses.	Total reported and estimated.
	Reported.	Estimated.	Total.				
Albany.. .. .	28	4	32	4	.. .	10	46
Allegany	19	13	32	.. .	.. .	12	44
Broome	26	2	28	4	.. .	8	40
Cattaraugus	32	10	42	.. .	.. .	6	48
Cayuga	18	3	21	4	.. .	12	37
Chautauqua	25	4	29	1	.. .	15	45
Chemung	35	1	36	2	.. .	5	43
Chenango	40	1	41	1	.. .	7	49
Clinton	17	3	20	.. .	.. .	20	40
Columbia	27	8	35	1	.. .	5	41
Cortland	19	3	22	3	.. .	6	31
Delaware	35	4	39	1	.. .	11	51
Dutchess	14	9	23	.. .	3	4	30
Erie	34	7	41	4	.. .	17	62
Essex	15	.. .	15	.. .	.. .	15	30
Franklin	10	1	11	1	.. .	3	15
Fulton	5	.. .	5	2	.. .	9	16
Genesee	15	.. .	15	.. .	.. .	8	23
Greene	28	.. .	28	.. .	.. .	13	41
Hamilton .. . . .	.. .	.. .	.. .	1	.. .	.. .	1
Herkimer	11	9	20	.. .	.. .	4	24
Jefferson	31	2	33	4	.. .	14	51
Kings	21	.. .	21	9	34	.. .	64
Lewis	14	2	16	1	.. .	6	23
Livingston	34	3	37	.. .	.. .	13	50
Madison	18	5	23	4	.. .	5	32
Monroe	33	6	39	.. .	.. .	5	44
Montgomery	20	1	21	2	.. .	7	30
New York	49	.. .	49	22	146	.. .	217
Niagara	9	3	12	1	.. .	4	17
Oneida	27	16	43	7	.. .	.. .	50
Onondaga	65	10	75	17	.. .	5	97
Ontario	41	2	43	3	.. .	13	59
Orange	25	2	27	3	2	12	44
Orleans	11	1	12	1	.. .	10	23
Oswego	39	3	42	1	.. .	9	52
Otsego	31	6	37	2	.. .	16	55
Putnam	9	.. .	9	1	.. .	2	12
Queens	8	1	9	3	.. .	.. .	12
Rensselaer	15	2	17	4	.. .	7	23
Richmond	3	.. .	3	1	.. .	.. .	4
Rockland	8	7	15	.. .	.. .	4	19
St. Lawrence	40	6	46	3	.. .	8	57
Saratoga	5	2	7	.. .	.. .	16	23
Schenectady	9	.. .	9	.. .	.. .	6	15
Schoharie	27	2	29	.. .	.. .	12	41
Schuyler	12	.. .	12	1	.. .	.. .	13
Seneca	11	.. .	11	2	.. .	4	17
Steuben	45	6	51	.. .	.. .	13	64
Suffolk	25	15	40	.. .	.. .	2	42
Sullivan	7	1	8	1	.. .	1	10
Tioga	11	.. .	11	.. .	.. .	2	13
Tompkins	10	1	11	1	.. .	3	15
Ulster	25	23	48	3	.. .	10	61
Warren	14	4	18	.. .	.. .	3	21
Washington	28	2	30	.. .	.. .	3	33
Wayne	26	4	30	5	.. .	8	43
Westchester	22	8	30	5	.. .	8	43
Wyoming	18	13	31	.. .	.. .	11	42
Yates	13	3	16	1	.. .	2	19
Total	1,312	244	1,556	137	185	424	2,312

TABLE XXXVI.

Showing the Sex and Nativity of 2,312 Idiots of the State of New York, December 31, 1871, by Counties.

COUNTIES.	Total	Male.	Female.	Native.	Foreign.
Albany	46	33	13	40	6
Allegany	44	20	24	44	.....
Broome	40	23	17	40	.....
Cattaraugus	43	26	17	42	1
Cayuga	37	25	12	35	2
Chautauqua	45	32	13	44	1
Chemung	43	30	13	42	1
Chenango	49	30	19	47	2
Clinton	40	25	15	14	26
Columbia	41	24	17	40	1
Cortland	31	22	9	31	.....
Delaware	51	19	32	51	.....
Dutchess	30	13	17	29	1
Erie	62	37	25	48	14
Essex	30	15	15	24	6
Franklin	15	10	5	13	2
Fulton	16	12	4	15	1
Genesee	23	11	12	20	3
Greene	41	24	17	35	6
Hamilton	1	1	.....	1	.....
Herkimer	24	14	10	23	1
Jefferson	51	27	24	42	9
Kings	64	37	27	57	7
Lewis	23	10	13	17	6
Livingston	50	35	15	48	2
Madison	32	25	7	29	3
Monroe	44	27	17	30	14
Montgomery	30	17	13	29	1
New York	217	122	95	192	25
Niagara	17	14	3	15	2
Oneida	50	28	22	45	5
Onondaga	97	59	38	92	5
Ontario	59	41	18	52	7
Orange	44	24	20	44	.....
Orleans	23	15	8	23	.....
Oswego	52	33	19	40	12
Otsego	55	37	18	46	9
Putnam	12	8	4	11	1
Queens	12	4	8	11	1
Rensselaer	23	13	10	27	1
Richmond	4	2	2	4	.....
Rockland	19	9	10	19	.....
St. Lawrence	57	35	22	52	5
Saratoga	23	9	14	22	1
Schenectady	15	7	8	14	1
Schoharie	41	19	22	41	.....
Schuyler	13	2	11	11	2
Seneca	17	7	10	14	3
Steuben	64	38	26	63	1
Suffolk	42	22	20	42	.....
Sullivan	10	6	4	10	.....
Tioga	13	11	2	12	1
Tompkins	15	6	9	15	.....
Ulster	61	39	22	60	1
Warren	21	14	7	21	.....
Washington	33	16	17	27	6
Wayne	43	22	21	38	5
Westchester	43	22	20	41	2
Wyoming	42	22	20	40	2
Yates	19	14	5	18	1
Total	2,312	1,355	957	2,092	220

TABLE XXXVII.

*Showing the Ages of 2,312 Idiots of the State of New York,
December 31, 1871, by Counties.*

COUNTIES.	Total.	Under 20 years.	10 years and less than 20.	20 years and less than 30.	30 years and less than 40.	40 years and less than 50.	Over 50 years.	Not stated.
Albany	46	1	13	3	6	3	1	14
Allegany	44	2	3	3	9	9	2	13
Broome	40	3	11	5	4	5	4	3
Cattaraugus	48	....	8	11	10	9	..	10
Cayuga	37	3	13	8	1	2	3	4
Chautauqua	45	2	10	14	6	6	2	5
Chemung	43	3	8	9	13	4	..	1
Chenango	49	5	10	9	5	11	3	1
Clinton	40	2	6	11	11	5	2	3
Columbia	41	....	10	7	4	2	3	15
Cortland	31	3	13	4	3	2	3	3
Delaware	51	2	11	11	8	11	4	4
Dutchess	30	2	9	6	1	2	1	9
Erie	62	5	9	13	11	7	7	10
Essex	30	4	7	9	3	4	3	....
Franklin	15	1	5	4	2	1	1	1
Fulton	16	1	7	2	1	3	2	....
Genesee	23	3	4	2	3	7	4	....
Greene	41	1	11	4	10	4	4	7
Hamilton	1	....	1	....	....	....	....	....
Herkimer	24	1	1	3	3	2	1	13
Jefferson	51	9	8	15	5	5	5	4
Kings	64	6	23	12	7	6	5	....
Lewis	23	6	4	6	3	2	..	2
Livingston	50	5	13	11	8	6	4	3
Madison	32	....	8	5	1	4	3	11
Monroe	44	5	14	4	4	7	4	6
Montgomery	30	2	10	2	3	4	3	6
New York	217	31	59	20	..	3	...	104
Niagara	17	....	5	1	7	1	...	3
Onesida	50	4	12	5	2	3	2	22
Onondaga	97	11	34	19	8	6	9	10
Ontario	59	4	19	10	11	5	7	3
Orange	44	5	11	9	7	3	...	4
Orleans	23	....	4	6	2	7	3	1
Oswego	52	3	13	14	11	3	...	3
Otsego	55	5	11	12	10	5	6	6
Putnam	12	2	4	3	....	2	1	....
Queens	12	....	2	1	1	3	1	4
Rensselaer	23	2	10	9	3	2	...	2
Richmond	4	....	2	2	....	...	...	....
Rockland	19	....	2	3	2	....	...	7
St. Lawrence	57	3	13	15	6	3	1	6
Saratoga	23	1	6	4	1	5	4	2
Schenectady	15	1	3	5	2	3	1	....
Schoharie	41	3	9	10	10	4	3	2
Schuyler	13	1	5	2	3	....	2	....
Seneca	17	3	5	3	4	2	...	....
Stenben	64	6	13	21	6	4	7	7
Suffolk	42	5	4	6	3	..	2	25
Sullivan	10	1	3	3	1	1	..	1
Tioga	13	1	4	3	1	1	2	1
Tompkins	15	....	3	3	4	2	2	1
Ulster	61	6	6	15	6	3	2	23
Warren	21	....	5	3	3	....	1	4
Washington	33	....	11	11	1	6	2	2
Wayne	43	1	12	5	9	3	4	4
Westchester	43	5	19	5	1	4	...	9
Wyoming	42	2	2	12	5	6	2	13
Yates	19	....	3	3	1	3	1	3
Total	2,312	133	579	443	231	251	147	490

TABLE XXXVIII.

Showing the Number of Persons Supported and Temporarily Relieved, and the Changes in the County Poor-houses, during the year ending November 30th, 1872.

COUNTIES.	No. in the poor-houses, Decem-ber 1, 1871.	Received during the year.	Born in the poor-houses.	No. supported.	No. temporarily relieved.	Total supported and relieved.	Discharged.	Bound out.	Absconded.	Died.	REMAINING Dec. 1, 1872.		
											Males.	Females.	Total.
Albany	280	1,264	7	1,551	.....	1,551	1,197	...	18	56	199	81	280
Allegany	63	40	1	104	248	352	81	...	...	10	31	32	63
Broome	79	189	...	218	1,435	1,653	100	...	...	5	61	52	113
Cattaraugus ..	74	64	1	139	209	348	45	2	5	9	44	34	78
Cayuga	102	241	...	343	1,438	1,781	235	...	6	5	36	61	97
Chautauqua ..	181	171	3	355	3,292	3,647	150	...	11	16	92	86	178
Chemung....	87	87	4	128	...	128	65	15	...	8	23	17	40
Chenango	76	48	1	125	460	585	12	1	15	11	40	46	86
Clinton	63	43	2	108	158	266	35	4	5	...	25	39	64
Columbia	148	581	2	731	.....	731	576	...	...	21	55	79	134
Cortland	60	40	...	100	.....	100	26	1	4	9	27	33	60
Delaware.....	50	100	1	151	427	578	88	4	...	15	26	18	44
Dutchess	122	228	2	352	40	392	227	1	5	13	66	40	106
Erie	541	747	24	1,312	7,420	8,732	609	31	48	61	387	178	565
Essex	93	35	1	129	260	389	26	...	7	9	34	53	87
Franklin	52	49	1	102	407	509	28	7	4	10	26	27	53
Fulton	48	24	3	75	40	115	23	1	...	3	29	19	48
Genesee.....	72	78	...	150	979	1,129	74	...	4	7	30	35	65
Greene	112	176	8	291	874	1,165	151	...	5	9	64	62	126
Hamilton....	...	...	...	...	.....	...	...	...	...	...	...	...	...
Herkimer ...	98	100	3	201	.....	201	92	...	...	18	44	52	96
Jefferson	182	154	8	344	.....	344	116	3	5	25	86	109	195
Lewis	53	36	1	90	98	188	23	...	...	13	26	28	54
Livingston ...	120	207	2	329	150	479	194	6	...	10	70	49	119
Madison.....	116	450	...	566	.....	566	430	3	3	15	78	37	115
Monroe	185	617	18	820	3,520	4,340	609	8	...	28	105	70	175
Montgomery .	92	25	2	119	156	275	14	4	2	5	57	37	94
Niagara	112	241	3	356	5,010	5,366	183	11	3	12	97	45	142
Oneida	263	579	10	852	3,871	4,723	518	...	23	25	123	164	287
Onondaga	200	250	2	452	.....	452	233	1	13	32	78	95	173
Ontario	100	83	1	189	952	1,141	75	2	6	14	54	38	92
Orange	195	330	5	530	200	730	324	4	3	9	95	95	190
Orleans	90	135	3	228	550	778	131	...	1	19	33	44	77
Oswego	66	102	1	169	.....	169	80	16	...	8	33	27	65
Otsego	103	91	2	196	184	380	64	2	23	14	54	39	93
Putnam	32	86	...	118	.....	118	76	1	3	...	23	15	38
Queens	99	545	4	648	1,029	1,677	548	...	...	5	74	21	95
Rensselaer ...	115	341	5	461	700	1,161	310	...	...	29	64	58	122
Richmond ...	85	121	3	209	751	960	98	3	...	11	42	55	97
Rockland. ...	48	202	...	250	600	850	199	...	...	6	15	30	45
St. Lawrence..	127	146	12	285	2,224	2,509	128	24	3	19	41	65	106
Saratoga	120	181	2	253	.....	253	70	3	33	36	59	52	111
Schenectady..	55	792	...	847	700	1,547	776	...	...	15	36	20	56
Schoharie	54	57	3	114	125	239	50	2	...	10	24	23	52
Schuyler	194	.....	...	194	.....	194	2	...	...	3	66	123	189
Seneca	78	128	1	207	641	848	114	1	...	5	65	22	87
Steuben	85	111	...	196	1,040	1,236	87	12	6	12	45	34	79
Suffolk	57	132	3	197	210	407	.....	12	81	24	45	35	80
Sullivan	73	45	1	119	270	389	38	...	...	12	32	37	69
Tioga	48	128	2	178	643	821	115	2	6	...	34	21	55
Tompkins ...	38	111	...	149	136	285	103	...	...	8	23	15	38
Ulster	126	229	6	361	197	558	219	14	6	13	61	48	109
Warren	40	42	1	83	156	239	25	...	7	4	23	24	47
Washington ..	109	139	6	254	.....	254	138	4	7	17	40	48	88
Wayne	73	402	...	475	400	875	382	...	15	8	40	30	70
Westchester..	370	1,299	8	1,677	63	1,740	1,232	5	26	43	235	136	371
Wyoming	46	18	...	64	168	232	15	...	1	4	17	27	44
Yates	33	43	1	77	.....	77	40	...	...	3	16	18	34
Total.....	6,833	12,808	180	19,321	42,431	61,752	11,549	210	422	305	3,453	2,831	6,284

TABLE XXXIX.

*Description of the Persons Remaining in the County Poor-houses
December 1, 1872, as far as shown by the reports of the Super-
intendents.*

COUNTIES.	Total.	Lunatics.	Idiots.	Blind.	Deaf- mutes.	Epileptics.	Children under 16 yrs. of age.	All others.
Albany	280	56	4	7	6	9	45	153
Allegany	63	10	5	2	1	.....	7	38
Broome	79	22	14	2	2	.....	.....	39
Cattaraugus	74	41	8	4	2	1	4	14
Cayuga	102	27	.....	2	.....	.....	2	71
Chautauqua	181	68	13	2	3	4	8	83
Chemung	37	5	6	2	1	.....	.....	23
Chenango	76	21	4	4	.....	3	9	35
Clinton	63	13	10	1	1	.....	4	34
Columbia	148	10	10	1	1	4	5	117
Cortland	60	12	16	3	1	1	1	26
Delaware	50	2	12	2	.....	8	3	23
Dutchess	122	13	2	4	.....	.....	7	96
Erie	541	147	8	4	1	.....	56	330
Essex	98	9	4	1	.....	3	27	49
Franklin	52	9	6	1	1	3	1	31
Fulton	48	3	4	3	1	.....	15	23
Genesee	72	21	9	.....	.....	3	7	32
Greene	112	13	9	3	2	5	23	52
Hamilton .....	.....	.....	.....	.....	.....	.....	.....	.....
Herkimer	96	20	3	.....	3	.....	16	56
Jefferson	182	76	10	3	.....	4	16	73
Lewis	53	3	21	3	1	2	2	21
Livingston	120	32	10	4	1	3	17	53
Madison	116	30	.....	1	.....	4	4	77
Monroe	185	15	3	2	1	3	10	151
Montgomery	92	18	4	4	6	.....	10	50
Niagara	112	17	13	7	1	2	23	44
Oneida	263	140	12	10	1	.....	15	85
Onondaga	200	87	8	9	.....	.....	.....	96
Ontario	100	5	14	2	1	4	20	54
Orange	195	12	5	7	1	1	15	154
Orleans	90	17	6	1	.....	1	15	50
Oswego	66	25	12	1	.....	1	.....	27
Otsego	103	15	14	.....	.....	.....	12	62
Putnam	32	4	3	.....	.....	.....	13	12
Queens	99	15	.....	1	.....	.....	15	63
Rensselaer	115	9	3	2	.....	.....	13	73
Richmond	97	10	.....	.....	1	.....	.....	86
Rockland	48	3	.....	.....	1	.....	12	27
St. Lawrence	127	12	7	3	2	.....	29	74
Saratoga	120	27	17	3	10	6	5	52
Schenectady	55	22	.....	6	.....	.....	2	25
Schoharie	54	3	6	1	.....	.....	3	31
Schuyler	194	1	1	1	.....	.....	20	171
Seneca	78	4	3	3	.....	.....	14	54
Steuben	85	12	14	2	.....	.....	5	53
Suffolk	57	10	1	3	1	2	13	27
Sullivan	73	30	.....	.....	.....	1	7	35
Tioga	48	11	3	2	1	1	4	26
Tompkins	33	3	2	.....	.....	.....	3	25
Ulster	126	8	7	4	.....	.....	15	92
Warren	40	5	5	2	1	.....	3	19
Washington	109	40	3	4	.....	.....	.....	57
Wayne	73	11	2	1	.....	.....	3	53
Westchester	370	21	3	.....	1	5	60	230
Wyoming	46	12	10	3	.....	.....	2	19
Yates	34	.....	.....	.....	.....	.....	9	25
Total	6,346	1,297	374	143	57	34	679	3,712

TABLE XL

Showing the Proportion of Native and Foreign-born Persons Supported in the County Poor-houses during the year.

COUNTIES.	Total.	Male.	Female.	Native.	Foreign.
Albany	1,551	1,094	557	596	1,045
Allegany	104	28	26	40	15
Bronx	218	123	95	125	38
Cattaraugus	120	95	25	85	51
Cayuga	343	149	194	154	173
Chautauque	255	210	145	159	128
Chemung	128	86	42	91	27
Chenango	125	68	57	97	28
Clinton	168	64	44	38	3
Columbia	731	681	180	280	521
Cortland	100	48	32	70	30
Delaware	151	106	45	109	42
Dutchess	252	206	86	161	191
Erie	1,312	866	446	640	672
Essex	129	58	76	112	17
Franklin	102	43	59	61	41
Fulton	75	47	28	62	13
Genesee	150	90	60	80	70
Greene	201	172	119	211	80
Hamilton .....	.....	.....	.....	.....	.....
Herkimer	201	106	95	107	94
Jefferson	344	160	184	208	136
Lewis	90	42	48	79	11
Livingston	329	245	84	182	147
Madison	566	452	114	229	337
Monroe	320	540	280	288	532
Montgomery	119	72	47	70	49
Niagara	256	255	101	170	186
Oneida	852	477	375	445	407
Onondaga	462	202	260	150	302
Ontario	180	108	81	96	83
Orange	530	376	154	300	230
Orleans	228	150	78	85	143
Oswego	160	94	75	84	76
Otsego	196	109	87	165	31
Putnam	118	73	45	51	67
Queens	648	588	80	60	579
Rensselaer	461	240	221	182	279
Richmond	209	98	116	87	122
Rockland	250	221	29	80	220
St. Lawrence	285	115	170	150	165
Saratoga	253	138	115	188	115
Schenectady	847	702	145	42	805
Schoharie	114	89	25	106	8
Schuyler	194	66	128	168	26
Seneca	207	156	51	138	69
Steuben	196	112	84	136	60
Suffolk	197	113	84	155	42
Sullivan	119	54	65	49	70
Tioga	178	130	48	126	52
Tompkins	149	120	29	40	109
Ulster	361	228	133	133	228
Warren	83	45	38	63	20
Washington	254	124	130	106	146
Wayne	475	125	350	317	158
Westchester	1,677	971	706	557	1,120
Wyoming	64	33	31	26	38
Yates	77	48	29	57	20
Total	19,831	12,152	7,169	8,616	10,705

TABLE XLI.

Amount Expended for Support and Relief during the year.

COUNTIES.	In connection with the poor-houses.	For temporary relief.	Total.
Albany	\$26,000 00	.....	\$26,000 00
Allegany.....	5,456 58	\$4,342 81	9,799 39
Broome.....	8,869 79	12,270 13	21,139 92
Cattaraugus....	6,148 23	6,246 01	12,394 24
Cayuga	11,611 84	19,416 82	31,028 66
Chautauqua.....	10,804 41	17,537 12	28,341 53
Chemung	3,525 30	.....	3,525 30
Chenango.....	5,623 69	3,907 77	9,530 46
Clinton	5,084 36	3,161 80	8,246 16
Columbia	12,571 54	.....	12,571 54
Cortland.....	3,600 00	3,296 40	6,896 40
Delaware.....	4,497 12	6,870 32	11,367 44
Dutchess	16,767 84	1,395 27	18,063 11
Erie	56,014 94	84,179 32	140,194 26
Essex.....	5,048 80	3,746 71	8,895 51
Franklin	3,929 76	5,560 82	9,490 58
Fulton	6,000 50	4,970 68	10,971 18
Genesee	4,193 98	2,823 05	7,017 03
Greene	5,402 47	1,703 60	7,106 07
Hamilton .....	.....	.....	.....
Herkimer.....	8,632 91	.....	8,632 91
Jefferson	13,100 33	36,367 27	49,467 60
Lewis.....	7,456 35	2,913 49	10,369 84
Livingston.....	13,364 74	3,505 69	16,870 43
Madison	12,076 00	.....	12,076 00
Monroe.....	17,271 34	84,043 16	101,314 50
Montgomery.....	8,000 00	500 00	8,500 00
Niagara.....	18,904 29	17,175 60	36,079 89
Oneida	23,736 86	29,106 00	52,842 86
Onondaga	11,367 15	2,506 83	13,873 98
Ontario.....	10,180 83	6,266 58	16,447 41
Orange	18,774 23	3,124 56	21,898 79
Orleans.....	5,779 57	3,476 53	9,256 10
Oswego.....	11,065 40	13,894 07	24,959 47
Otsego.....	9,391 56	3,626 48	13,018 04
Putnam.....	1,428 07	.....	1,428 07
Queens	13,361 69	1,300 09	14,661 78
Rensselaer.....	19,612 00	8,959 00	28,571 00
Richmond	7,998 55	.....	7,998 55
Rockland	3,410 42	4,702 81	8,113 23
St. Lawrence	9,027 35	30,039 89	39,067 24
Saratoga	12,103 71	.....	12,103 71
Schenectady	8,801 49	2,521 32	11,322 81
Schoharie.....	3,914 97	60 00	3,974 97
Schuyler .....	.....	.....	.....
Seneca.....	7,202 23	4,353 95	11,556 18
Stenben.....	7,741 02	11,560 92	19,301 94
Suffolk	11,205 04	22,859 72	34,064 76
Sullivan	4,784 02	4,257 35	9,041 37
Tioga.....	4,972 69	7,070 50	12,043 19
Tompkins	1,857 28	1,230 00	3,087 28
Ulster	10,497 05	237 00	10,734 05
Warren.....	3,421 60	2,067 49	5,489 09
Washington	9,745 01	.....	9,745 01
Wayne	6,409 83	3,979 52	10,389 35
Westchester.....	22,709 15	1,443 75	24,152 90
Wyoming	4,569 39	2,679 91	7,249 30
Yates.....	2,997 42	4,087 12	7,084 54
Total.....	\$563,291 69	\$502,297 23	\$1,065,588 92

TABLE XLII

Showing the Value of Poor-house Establishments, Labor of the Paupers, and the Expense of Supporting each Person.

COUNTIES.	Number of acres of land attached to the poor house.	Estimated value of poor house establishments.	Value of labor of paupers.	Amount expended above the value of the labor of the paupers for the support of each person.	Weekly expense of each person.
Albany	115	\$22,000 00	\$1,000 00	200 00	27 00
Allegany	140	15,000 00	1,000 00	200 00	27 00
Broome	120	2,000 00	1,000 00	200 00	27 00
Cattaraugus	260	22,000 00	1,000 00	200 00	27 00
Cayuga	40	25,000 00	1,000 00	200 00	27 00
Chautauque	200	15,000 00	2,000 00	200 00	27 00
Chemung	175	10,000 00	...	200 00	27 00
Chemung	154	21,000 00	500 00	200 00	27 00
Columbia	80	5,000 00	500 00	200 00	27 00
Columbia	212	40,000 00	...	200 00	27 00
Cortland	110	2,000 00	400 00	200 00	27 00
Delaware	200	15,000 00	...	200 00	27 00
Dutchess	100	40,000 00	...	125 00	27 00
Erie	154	174,640 00	1,725 00	200 00	27 00
Essex	87	6,500 00	250 00	200 00	27 00
Franklin	102	42,572 00	...	200 00	27 00
Fulton	100	15,000 00	...	175 00	27 00
Genesee	220	19,000 00	500 00	47 00	27 00
Greene	180	15,000 00	500 00	47 00	27 00
Hamilton .....	...	...	...	...	...
Herkimer	65	10,000 00	...	200 00	27 00
Jefferson	180	25,000 00	1,000 00	200 00	27 00
Lewis	50	17,000 00	250 00	200 00	27 00
Livingston	118	44,872 00	1,000 00	200 00	27 00
Madison	150	16,000 00	...	200 00	27 00
Monroe	95	28,500 00	500 00	200 00	27 00
Montgomery	160	20,000 00	200 00	200 00	27 00
Niagara	120	40,000 00	500 00	200 00	27 00
Oneida	190	90,000 00	1,500 00	200 00	27 00
Onondaga	85	92,955 00	...	200 00	27 00
Ontario	212	21,200 00	800 00	200 00	27 00
Orange	263	65,000 00	2,100 00	100 00	27 00
Orleans	121	14,953 00	100 00	200 00	27 00
Oswego	60	25,000 00	...	200 00	27 00
Otsego	120	18,000 00	...	...	27 00
Putnam	202	...	...	200 00	27 00
Queens .....	...	...	...	...	...
Rensselaer	163	75,000 00	1,100 00	107 12	27 00
Richmond	121	21,000 00	...	...	27 00
Rockland	48	15,000 00	150 00	80 78	27 00
St. Lawrence	335	75,000 00	...	67 08	27 00
Saratoga	115	15,000 00	100 00	101 70	27 00
Schenectady	70	50,000 00	...	...	27 00
Schoharie	112	10,000 00	600 00	47 32	27 00
Schuyler .....	...	...	...	...	...
Seneca	126	18,000 00	...	81 76	27 00
Steuben	200	15,000 00	...	87 79	27 00
Suffolk	170	80,000 00	555 00	84 11	27 00
Sullivan	100	12,000 00	600 00	47 58	27 00
Tioga	60	9,800 00	625 00	84 45	27 00
Tompkins	100	15,000 00	500 00	87 96	27 00
Ulster	160	20,000 00	800 00	86 86	27 00
Warren	180	5,000 00	200 00	72 80	27 00
Washington	173	25,000 00	1,200 00	77 48	27 00
Wayne	195	31,000 00	...	81 12	27 00
Westchester	165	65,000 00	1,450 00	80 05	27 00
Wyoming	263	24,500 00	350 00	74 86	27 00
Yates	165	12,000 00	...	...	...
Total	8,228	\$2,096,900 09	\$27,394 95	...	...

TABLE XLIII.

Showing the Number of Persons Supported and Relieved, and the Changes in the City Alms-houses during the year ending November 30, 1872.

NAME.	Number in the Alms-house Dec. 1, 1871.	Received during the year.	Born in the house.	Whole number supported.	Number temporarily relieved.	Total supported and relieved.
Kings County (Brooklyn City) Alms-house.....	2,427	5,022	110	2,122	22,222	21,000
Newburgh City and Town Alms-house.....	55	25	5	122	322	455
New York City Alms-house	5,277	25,222	222	21,222	22,222	40,222
Oswego City Alms-house	22	22	2	22	22	22
Poughkeepsie City Alms-house.....	22	22	2	22	22	22
Utica City Alms-house and Hospital	22	22	2	22	22	22
Total	8,506	22,222	222	41,222	22,222	22,222

* Families.

TABLE XLIII—(Continued).

NAME.	Discharged.	Bound out.	Absconded.	Died.	REMAINING DEC. 1, 1872.		
					Males.	Females.	Total.
Kings County (Brooklyn City) Alms-house.....	5,214	....	12	227	1,221	1,144	2,225
Newburgh City and Town Alms-house.....	55	2	....	2	45	15	60
New York City Alms-house.....	22,747	171	22	2,242	2,222	2,222	5,222
Oswego City Alms-house	22	2	....	2	22	22	22
Poughkeepsie City Alms-house	22	....	2	22	22	22	22
Utica City Alms-house and Hospital	22	....	....	22	22	22	22
Total	22,222	172	116	2,222	4,222	4,222	8,222

TABLE XLIV.

Description of the Persons Remaining in the City Alms-houses December 1st, 1872, as far as given.

NAME.	Lunatics.	Idiots.	Blind.	Deaf-mutes.	Epileptics.	Children under 16 years of age.	All others.	Total.
Kings County (Brooklyn City) Alms-house
Newburgh City Alms-house
New York City Alms-house
Oswego City Alms-house
Poughkeepsie City Alms-house
Utica City Alms-house and Hospital
Total

TABLE XLV.

Showing the Proportion of Native and Foreign born Persons Supported during the year.

NAME.	NUMBER OF PERSONS SUPPORTED.			Native.	Foreign.
	Male.	Female.	Total.		
Kings County (Brooklyn City) Alms-house..	4, 216	8, 973	8, 189	8, 493	4, 696
Newburgh City and Town Alms-house	72	54	126	15	111
New York City Alms-house	18, 476	18, 329	81, 805	10, 819	20, 986
Oswego City Alms-house	65	34	99	42	57
Poughkeepsie City Alms-house.....	915	133	1, 048	233	765
Utica City Alms-house and Hospital.....	120	72	192	66	126
Total	23, 864	17, 595	41, 459	14, 718	26, 741

TABLE XLVI.

Amount Expended for Support and Relief during the year.

NAME.	For support in alms-houses.	For temporary relief.	Total.
Kings County (Brooklyn City) Alms-house.....	\$305, 179 79	\$95, 771 43	\$400, 951 22
Newburgh City Alms-house.....	10, 146 83	1, 756 81	11, 903 14
New York City Alms-house... ..	718, 970 56	104, 051 04	823, 021 60
Oswego City Alms-house.....	4, 202 98	1, 825 14	6, 028 12
Poughkeepsie City Alms-house	10, 834 89	2, 567 98	13, 402 87
Utica City Alms-house and Hoepital... ..	7, 442 13	19, 946 83	27, 389 51
Total	\$1, 056, 777 18	\$225, 912 28	\$1, 282, 689 46

TABLE XLVII.

Showing the Value of the Alms-house Establishments, Labor of the Paupers and the Expense of Supporting each Person.

NAME.	Acres of land at- tached to the alms-house.	Estimated value of alms-house establishments.	Value of labor of inmates.	Yearly sum ex- pended for the support of each person.	Average weekly expense of each person.
Kings County (Brooklyn City) Alms-house	70	\$1, 200, 000	\$1, 000	\$126 47	\$2 43
Newburgh City Alms-house.....	73	40, 000	.....	200 00	2 30
New York City Alms-house.....	.....	2, 695, 000	.....	.....	.....
Oswego City Alms-house.....	136	55, 000	1, 500	60 68	1 17
Poughkeepsie City Alms-house.....	16	80, 000	200	160 00	2 16
Utica City Alms-house and Hospital... ..	5	40, 000
Total	302	\$4, 110, 000	\$2, 700

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